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Original Communications.

ARTICLE I. — *Cases of Trichiniasis, and Successful Treatment.* By C. B. REED, M.D., *Hampshire, Kane County, Illinois.*

ON the 24th of last December, in the evening, I was called to see a family of Prussians, living on what is here called the Molony farm, situated in the extreme northwest corner of Kane County, and distant about seven miles from my residence.

As I must be brief, for several reasons, I will endeavor to give only what seems to me most important to medical men, of that which I saw, heard, and did.

I found a large two-story wooden dwelling-house, occupied by two families, one in each story. The messenger conducted me to the upper story, where I found four sick persons belonging to the family of Mr. Fritz Martens — Mr. Martens, Mrs. Martens, his wife, a child in the third year, his son, and a woman, fifty-six years old, his mother.

I investigated these cases as far as practicable that evening, renewing the investigation at an early hour on the following morning; and after a very careful and thorough review of all I

could gather, I was forced to believe that these persons were suffering from trichiniasis, and stated the fact to my patients. I also examined the meat used for food by the family, and assured them that it contained large numbers of trichinæ.

I was informed that, some time previously, a hog had been slaughtered for food; that the hams and fattest portions of the meat had been preserved in brine, while all the lean meat was made into a kind of sausage, which is eaten raw. Every one, so far as I could learn, who had eaten of the raw sausage, except two, who afterwards came under my observation as patients, were then sick; but no one eating of the cooked meat only had sickened.

I could learn nothing of the animal that should have excited suspicions of anything wrong.

Curiosity induced me to visit the lower story of the building, where I found four more persons suffering from the same disease, three of whom appeared near the end of the journey of life, and have since died.

Both families had been looked after by a Homœopath, for two weeks. More cannot be said in his favor, as he had, previous to this time (Dec. 25), given them no intimation of the nature of their ailment; but professed to be treating for bilious difficulty. I am sure that up to this date he did not know *what was the matter*.

My announcement of my diagnosis in these cases produced the greatest excitement in the neighborhood, and led to his dismissal, and upon my suggestion, another regular practitioner was called in to attend those in the lower story of the building. I thought that the responsibility of so many serious cases should not all rest upon one physician.

As all these patients appeared so much alike, only a general enumeration of symptoms would be interesting.

Every one complained of a very sore throat, without any swelling or redness, inability to protrude the tongue, which was swollen, with a red tip and edges, and a seeming tendency to the formation of a smooth, glossy strip along the centre; great difficulty in uttering articulate sounds; an entire loss of appetite, with little or no nausea, but very frequent eructations of wind; great thirst; diarrhœa, with very frequent evacuations, except in

the case of Mr. Martens' mother, who had not had a stool for a week — the stools appearing like those of typhoid fever, except in the case of Mr. Martens' son, who had large watery stools, reminding one of the operation of epsom salts. There appeared to be an utter inability to digest vegetable food, bread and other vegetable food in the solid form passing without more alteration than would be produced by a thorough soaking in the fluids.

There was a moist skin in all the cases, while some were covered with a profuse perspiration, though the temperature, taken in the axilla, ranged from 102° to 103½° of Fahrenheit. All had an eruption of a peculiar character, reddish in color, and very copious in most of the cases, the spots varying from a mere point to the size of a silver half dollar, and remaining till the patients recovered. There was a generally swollen condition of all the muscles, in most of the cases, and the fascia and sheaths of the muscles contained a large quantity of serous fluid, which gave the limbs a peculiar appearance that I do not remember to have seen elsewhere.

There was not much pain when all the muscles were quiet, though pressure caused pain at any time. Any movement of the muscles of the body and lower limbs was very painful. The muscles of the arms were not so bad as the lower limbs, nor were their movements so much restricted. The pulse was much accelerated; small and wiry where the bowel complaint seemed to take the lead, and not very full in any of the cases. Mr. Martens had pneumonia, and his mother had pneumonia and peritonitis. A constant wakefulness was a very prominent feature in all the cases.

I had no hopes of the recovery of Mr. Martens or his mother, from the first.

I helped Mr. Martens to break his Homœopathic fast with a spoonful of chicken soup, on the ninth day, and I am informed that one of those who died in the lower part of the house had not taken any nutriment for fourteen days.

Mr. Martens died on the 27th, in the morning, and his mother died on the 2nd of January, following. Nothing was done for Mr. Martens beyond an attempt to sustain the strength, and the administration of aquæ chlorinii a few hours.

His mother took six grains a day of carbolic acid, for four

days, which seemed somewhat to modify the disease; and she also took frequent doses of castor oil and turpentine, for the purpose of thoroughly clearing out the alimentary canal.

After her death a portion of muscle was examined microscopically, and found to contain a large number of living trichinæ—a very sufficient proof that the quantity of the acid given was not enough to kill the worms outside of the alimentary canal.

Mr. Martens' wife and child were the last persons on the premises who came down with the disease. They were as sick as any of the others, and as treatment has seemed to be successful, in their cases, I have no doubt it will be interesting, and therefore give its most important features:

℞ Carbolic Acid, - - - - - grs. xij;
Oil of Turpentine, - - - - - f℥j;
Tr. of Opium, - - - - - gtt. xc;
Gum Arabic, - - - - - ℥ix;
Loaf Sugar, - - - - - - ℥j;
Water to make f℥vj of the mixture, of which f℥ss was to be given every two hours.

Two grains of quinine were given every eight hours, and a teaspoonful of alcohol, flavored with sassafras, and properly diluted, was given every six hours. A full dose of a mixture of castor oil and oil of turpentine was given every day, for a few days, as a cathartic.

When the emulsion had been continued about ten days, she became anasarcous, and it was omitted, and a diuretic mixture substituted.

She was in the sixth month of pregnancy, and had some œdema of the limbs before she became trichinosed. She miscarried January 10th, and all medicine was laid aside except two grains of quinine three times a day.

On the 16th I found the swelling of the limbs and dropsical effusion nearly gone, the soreness was not any longer apparent; and she did, in spite of my remonstrances, get up and go about the house. At this time she resumed her ordinary diet, which had previously been restricted to a very generous supply of animal food in the fluid form.

The only medicine directed at this time was ten drops of tincture of muriate of iron to be taken three times a day.

On the 19th, she was able to attend to her duties about the house, and was removed to the residence of friends at a distance.

It is proper that I should here acknowledge my obligations to Drs. Hagar and Stull of Marengo for timely and valuable suggestions in the case of Mrs. Martens, though they were not employed. The boy, son of Mr. Martens, who was in his third year, was treated with an emulsion containing somewhat more than the proportionate quantities of acid and turpentine, and a small quantity of paregoric instead of laudanum, with daily cathartic doses of castor oil and oil of turpentine; and a large allowance of animal food in the fluid form. His recovery was much more rapid than his mother's.

On the 29th of December, Mr. Charles Rathka and wife, who live about a mile from the Molony farm, applied to me for advice, they having eaten freely of the raw sausage while visiting at the Molony farm on the 20th. Mr. Rathka showed no other signs of the disease than very slight indigestion. Mrs. Rathka had sore throat, as she called it, indigestion, frequent eructations of wind, loss of appetite, a constant very disagreeable feeling in the stomach, some soreness of the muscles, an accelerated circulation, an increased heat of the surface, and a coated tongue, red at the tip and edges. I gave each one a cathartic of castor oil and oil of turpentine, with half a grain of carbolic acid, to be followed by one grain of carbolic acid dissolved in water every six hours. On the 30th, not perceiving any improvement, I gave both of them a cathartic of castor oil and oil of turpentine, to be followed by one grain of carbolic acid dissolved in mucilage of gum Arabic every hour, to be continued until both had taken twelve grains of the acid.

Treatment was then discontinued.

On the 2nd of January Mr. Rathka was well, and his wife had only a slight stiffness about one ankle, which soon subsided; and they have both remained well up to this time.

Results may be stated as follows: two deaths and three recoveries, (not counting Mr. Rathka); though as no hopes were entertained of the recovery of Mr. Martens and his mother from the first time that I saw them, I do not think their cases should be counted in summing up results.

I am indebted to the politeness of my friend and former pre-

ceptor, Dr. Joseph Tefft, of Elgin, for a microscopic examination of the portions of meat and muscle previously referred to, and for an estimate of the number of trichinæ to the square inch in a portion of ham that I sent him, which according to his estimate was about eight thousand.

The Doctor also has my thanks for the opportunity he gave me of seeing the worms alive with his excellent instrument.

ARTICLE II. — *Reply to a Criticism of Z. C. McElroy, M.D., President of the "Muskingum County Medical Society," in Relation to an Article, by the Writer, upon the "Physical Basis of Life,"* by H. CULBERTSON, M.D., Assistant Surgeon U. S. Army, retired, Zanesville, Ohio.

EARLY in December last we read an article on the "Physical Basis of Life," before the above-named society. Its president, the gentleman named, has criticised, in the *Chicago Medical Journal*, certain qualities mentioned in the paper, which we believe to be peculiar to *organic life*, and has attempted to show that these all depend on "form" and "motion."

It may be premised that, if it is not the object of this gentleman to establish a system of medicine, based on "form" and "motion," and not a mere classification, his essay is worthless as a medical production, and deserves no comment as an *iconoclastic* effort. *Classifications* aid greatly in the acquirement of knowledge, but are far different from a SYSTEM based upon assumed or proven principles.

As, however, it is manifest, from a reading of this gentleman's paper, that the object is to inaugurate a SYSTEM OF MEDICINE on two of the qualities of matter, viz.: "form" and "motion," all the other properties of matter are at once ostracized by the very nature of this assumed predicate, "form" and "motion."

To proceed: "Form," from *forma*, "abstractly a figure," (in this connection) relates to contour, the external, of bodies. Thus we speak of the "form" of crystals, of hepatic cells, etc., meaning, thereby, simply their figure. With this plain definition of "form" in view, the objections to the attempt to establish a scientific system of medicine, based, in part, on "form," are:

1st. That as "forms" (organic) are composed of particles, there is a point in the origin of organized bodies, when the matter of which they are composed becomes invisible, naturally and artificially. Hence, to support this form-doctrine, as a life-basis, it is necessary to assume that "form" does obtain behind the visible "form," when it cannot be proved; and this, it is claimed, is unscientific. The outlines of organic "forms" might be this or that, when beyond our inspection; and as the microscopic field is enlarged, units are resolved into compounds, and new features are developed in life previously unsuspected.

But the ultimately visible "granule" of the life-cell, does not possess definite "form." Inclining to curved lines, it is not uniform in its figure, and hence we can predicate no *definite* system of medicine on the *indefinite* "figure" of a germ-life-granule. The diverse "forms" of individual classes of life-cells corroborate this view: Tesselated epithelium is circular, polygonal, or irregular;* the "form" of fat vesicles is globular, oval, or polygonal;† cartilage-cells are irregular in size and shape;‡ and air-cells vary in size and shape, but incline to an angular "form."§ Such diversity in the cell-figure of typical life-structures, refutes the value of any system based on "form."

2nd. The fact that this ultimately visible "form," being actuated by a power to appropriate that which is proper for its maintenance, loses and gains particles continually, and hence, therefore, cannot *strictly* be possessed of the *same* "figure" at these formative and destructive periods of the life-"form;" and the fact that this action is accomplished on particles of life-matter of diverse "form," adds weight to this argument.

3rd. The fact and conclusion that "form" being the result of *force* and *figure*, the basis of this system of medicine, we are precluded from considering the *power* which actuates the "form," as contour is the basis; and the instant we begin to contemplate the *other* qualities of matter, as inertia, divisibility, compressi-

* *Hassall's Mic. Anatomy*, Vol. I, p. 265.

† Ditto, Vol. I, p. 254.

‡ Ditto, Vol. I, p. 307.

§ Ditto, Vol. II, Plate xlviii, Fig. 3.

bility, expansibility, porosity, (but not mobility, by this system,) we are without the pale of this figure-basis, and our consideration of these qualities of matter in general leads to the conclusion that the "form"-basis is inadequate as a scientific basis in medicine, or the act would not have been done.

4th. The fact that all the other qualities of a life-"form" do not emanate "from" *figure*, is an objection, as the basis of a system here should be that from which all the other qualities spring. It would seem probable that definite "form" is not necessary that life-qualities may be manifested, and incorrect to maintain that without "form" none of the physical qualities of matter could be developed in a life-body, the truth being that matter, force, and the qualities of matter *in general*, are required in this relation.

5th. The consideration that figure, being only the exterior, and the basis of this system, histology and pathology become of secondary importance, as the investigation of the interior structure is, by the nature of this *figure*-basis, logically debarred.

6th. The fact that, as physicians, our attention being constantly directed to the *exterior*, by this system, will create in us a tendency to lose sight of the organic *interior*, and thus will we neglect the internal operations of an organic body, and be led to ignore our natural desire to look beyond the "figure" into the *structure*.

7th. The fact that, in organic generation, the ultimately visible germ (which has no uniform figure) develops so many structures having *different* "forms;" and that this diversity cannot be accounted for on any law of "form."

8th. The fact that organic generation takes place by cleavage of "form," or the introduction of the material quality, "divisibility," is an argument against this "form"-basis as a sole foundation in relation to this subject.

9th. The fact that this system ignores causes (is based on figure), and investigates alone effects ("form" is the result of *force*), is prejudicial to progress in medicine, and opposed to our imperative duty, in the cure of disease, to look for causes, and is not equal to our present system, which considers the exterior, the interior, and causes.

9th. The fact that the visible features of the infant are so

changed as not to be recognized in the adult, though the last proceeds from the first, is a potent argument against any doctrine based on "form."

10th. The fact that in certain varieties of paralysis the muscular fibres retain their "form," but the *structure* presents fatty degeneration,* leads to the conclusion that although the "form" is unaffected, the *structure* may be, and hence this "figure"-basis does not meet all the circumstances attending such a transformation. And, again, in simple hypertrophy, although the "form" is unchanged, being only enlarged, its mere increase of size (or "form") may lead to disease.

11th. The fact that if "form" be understood to mean "idea" (one of its definitions), a system of medicine based on such a "form," would be founded on an *immaterial* characteristic, and hence would clearly not be established on a "physical basis."

For these reasons, and others which might be given, it is claimed that a scientific system of medicine cannot be established on "form."

The objections to "motion," as the basis of a scientific system of medicine, we believe are as follows, it being understood that "motion," *moteo*, means "change of local position:"

1st. That the test "motion" will not enable us to define the *modus operandi* of medicines, and hence, were it the basis, it would still be necessary to depend on the *experimentum crucis* to solve this point.

2nd. The conclusion that the motion, in an organic body, cannot be so rapid in its molecular action, as to destroy it, by tissue-rending, and hence, that simple "motion" cannot account for molecular death. Thus the most rapid growths, as fungi, developing by millions per minute, reach perfection (yet die soon); and in the human body the impetus of the fluids in disease, over that in health, is not sufficiently great to give rise to maladies by mere velocity. Such rapid development as is seen in the growth of fungi, would destroy many objects in the physical world, and yet does not the fungi.

3rd. The conclusion that, in cholera, and several adynamic diseases, there is rapid waste-"motion," *with lowness of temper-*

* *Gross Surgery*, Vol. I, p. 252, first edition.

ature, when in physics *increase* of temperature obtains from augmentation of "motion;" and hence the *reduction* of temperature, observed in cholera, does not comport with one of the laws of physics, and should not, therefore, be the basis of a *physical* system of medicine.

4th. The conclusion that secretion cannot be induced in a glandular organ, while inflamed, (under excessive motion) and until its excitement has been reduced, or from *diminished motion*, results *increased action* (the secretion), is contrary to a law of physics, for *diminished heat* should induce *diminished* motion.

5th. The conclusion that, in certain stages of many diseases, the rapid circulatory "motion" denotes debility, not strength; and yet, by this "motor" theory, the more rapid the motion the greater should be the strength, when the truth is, in the animal body, the slower (within a certain range) the motion, the greater is the strength; and hence the rejection of this "motor"-basis, as not in consonance with another of the laws of physics.

6th. The fact that certain medicines *diminish* motion (*digitalis* on the heart), but *increase* strength, when, on this theory, such agents, in *diminishing* action, should *decrease* strength, is opposed to this "motion"-basis, and another of the laws of physics.

7th. The conclusion that "motion" takes place in vegetables and cold-blooded animals, unattended by the development of heat, demonstrates that this peculiar motion does not agree with one of the laws of mobile bodies, and hence "motion" should not be the basis of a *physical* system of medicine.

8th. The conclusion that as "motion" is only the effect of a force, any system of medicine based on it precludes (for it is unnecessary) the consideration of the *cause* of the "motion;" and should we investigate the cause, we are without the limits of the basis; and as the tendency is to consider causes, it is unscientific to systemize on *effects*, in lieu of *causes*, as a basis in medicine.

9th. That the destructive changes observed in some diseases cannot be accounted for by "motion," for the *increased* circulatory speed, observed in some *active* maladies, is not *sufficiently* more rapid than the normal "motion" of a life-body, to account for the *rapid* waste. Thus, in acute dysentery, though there is

rapid waste, "the pulse, in the majority of cases, is but little, and sometimes not at all, accelerated."*

10th. The conclusion that the effects of tonics take place without perceptible *increase* of normal organic "motion" (as iron upon the red globules), is opposed to this basis in medicine.

11th. The conclusion that emetics increase gastric "motion," but relax the cardiac sphincter, is opposed to this "motion"-basis, as such agents must act solely to increase or decrease "motion."

12th. The conclusion that the increased *motion* from stimuli, cathartics, diaphoretics, diuretics, and antispasmodics (as chloroform), fails to account for the *diminished motion* observed subsequent to their use; or the increased strength often resulting from sedatives, and always from natural sleep; and hence "motion" will not account for these phenomena, and should not constitute a medical basis.

13th. The conclusion that when astringents act mechanically, by coagulating fluids, the solid particles closing pores, the introduction of a "mechanical" quality is needed to render the action of such agents efficient, and shows that "motion" alone is insufficient as a basis in this relation.

14th. The conclusion that simple "motion" will not account for the fact that the effects of medicines *decrease* by use, when in physics the *same* force applied always produces an *equal* effect.

15th. That simple "motion" does not account for the *elective* affinity displayed by medicines on various organic bodies; nor for the effects of the same alkaloid, *e. g.*, of opium, when given to pigeons and man. Thus, narcotina, which has been taken by man, in doses of 120 grs., with impunity, when given to pigeons subcutaneously, in two grain doses, produces their death.†

It may also be stated here that therapeutic agents have, long since, been classified, on the basis of "motion," by the late lamented PROF. ROBLEY DUNGLISON.

These considerations seem to warrant the conclusion that a *scientific* system of medicine cannot be based on "motion."

Will a union of "form" and "motion," conjointly, enable us

* *Flint's Practice Medicine*, p. 351, third edition.

† See experiments of S. Weir Mitchell, M.D., *Hays' Journal*, January, 1870.

to found a *scientific* system of medicine? It is claimed these qualities will not enable us to do this, for the following reasons: The forces which produce organic "form" and organic "motion," are different in nature. The one is engaged in the particular *arranging*, the other in the *propulsion* of particles to be deposited. They are antipodal. The "form-force" develops a tendency to fixation, while "motion" presents a quality of destruction in the form. Suppose each of these "forces" could act in a right line — they would *always* continue *parallel*, unless *harmonized* by some intervening "force;" so, in an organic "form," these forces cannot *act as a unit* without the intervention of some *power*. Thus considered, "motion" and "form" cannot constitute the basis of a scientific system of medicine.

It seems obvious, too, that when either of two propositions are erroneous, the union of the two cannot establish truth; or "two wrongs will not make a right." Thus, if "form" and "motion," each viewed independently, does not develop respectively a scientific system of medicine, the union of these physical qualities will not accomplish this object, especially when it is shown that they cannot act as a unit without the operation of an intervening force. It would also seem well to remember here that, even did this "form" and "motion" system permit its author to call to his aid, in the erection of his doctrine, *all* the *physical* qualities of matter, it is necessary, to render the forces of matter harmonious in life, that there should be present a *positive independent force* to effect this unitarian result.

Three remarks of Dr. McElroy should be noticed:

1st. "Motion is the simple unit of force."

Motion being the result of force, and the latter being primary, it seems difficult to comprehend how "motion can be a unit of force;" *i. e.*, "a known determinate quantity, by the constant repetition of which any *other quantity* of the *same kind* is measured."* By this definition of *unus*, it can be understood that there may be a unit of "force," or of "motion," but it would seem impossible that one (force) can be a unit of the other, as they are *not* of the *same kind*.

2nd remark. "Our power over 'form' is *nil*, but our power over 'motion' is considerable."

* Olmstead's definition.

No one will deny the latter clause, but the former may be questioned. Organic forms being composed of particles, and constantly undergoing molecular changes, formative and destructive, it would be astonishing if such a form could not be influenced. Thus the general form of the body is influenced by external causes. A young and delicate boy enters the engineer corps, is exposed, has much exercise, eats and sleeps well therefrom, and grows rotund, large and solid, instead of the meagre boy. Again, certain Indian tribes flatten the heads of their children, that they remain so for life, and yet the brains of such distorted objects continue to perform their functions well. By the use of cod-liver oil we improve the *embonpoint* of our patients, and by the use of tonics we give power to digestion; and thence the nutritive system is improved, and the body enlarged. Starvation, too, diminishes the bulk of the body, and alcohol enlarges it. Further illustrations seem useless, but it seems proper to remember that what is here observed in *bulk*, takes place, in *minutiæ*, in organic bodies.

3rd remark. "Function depends on form." *Functio*, here the "office of any particular part of the animal body," is the result of "force," not of simple "figure." That the figure of a body may exercise some influence on neighboring parts (as pressure of one part against another, or by the interposition of organic substances) seems plain; but it is not supposed that such minor agencies give origin to the force which enables a part to perform a certain duty in animal life.

It would seem almost self-evident that the numerous organic structures, so similar in "form," yet performing such vastly different functions, would be an unanswerable argument against the doctrine that function depends on "form." That "form" may modify function, seems true; but it is claimed that "function" always depends on "force."

It remains to reply to the criticism of Dr. McElroy. In so doing, the peculiarities of life, as presented by myself, will be noticed as "Peculiarity," the criticism of the doctor as "Criticism," and the reply as "Rejoinder."

1st Peculiarity — "ACTIVITY, contra-distinguished from simple motion, and this presenting often, to our observation, as opposed to the operation of physical laws."

The above is an exact quotation from the original paper, and on which the following criticism was made. But, in the article as published, to express the idea more fully, the word "spontaneous" was prefixed to "activity."

"*Criticism:* Activity is a quality of motion; it is, in fact, motion — nothing more."

Rejoinder: "Activity" (spontaneous), from *ago*, "to drive gently or forcibly," implies the operation of some force which produces phenomena, and it embodies a quality of volition. It implies the presence of a power capable of setting bodies in motion, and bringing them to a state of rest. Motion is the simple propulsion of bodies, without power to change the direction of the propelled body. Motion is, therefore, passive. "Activity" (spontaneous) is volitional. Thus viewed, how can a volitional quality become a quality of simple motion, when the motion is the result of a volitional force, and only one of the phenomena of a life-body developing spontaneous "activity?" Or how can the greater be included in the lesser? It seems plain that motion may be a quality of activity, but not activity of motion, and that "activity" (spontaneous) is something more than mere motion.

2nd Peculiarity — "INDIVIDUALITY, which causes even like particles of matter to present different features."

"*Criticism:* The simplest element of individuality must be in form or forms."

Rejoinder: If admitted that "form" is the simplest element of individuality, such a definition would be imperfect, as it considers only the element "figure," neglecting even the force which gives origin to such organic peculiarities, and falling short of our mental conceptions of individuality, and dictating the conclusion that individuality is something more than "form."

3rd Peculiarity — "'REPRODUCTION,' or a perpetuation of INDIVIDUALITY."

"*Criticism:* "Reproduction, stated in its simplest terms, consists in form and motion."

Rejoinder: In the perpetuation of the individual, common and peculiar qualities of organic life are propagated. To claim, therefore, that these, in their "simplest terms," are "form" and "motion," ignores all the other qualities of life, which has already

been shown in this article, is unscientific, and of no practical value, even were the statement admitted to be true.

4th Peculiarity — "IMMUTABILITY, or the maintenance of life, notwithstanding all the changes which take place in an organic body."

"*Criticism:* Maintenance of 'form,' with perhaps incessant, or perhaps frequent molecular changes." Also claims that organic bodies are not strictly immutable.

Rejoinder: It is claimed that beings can possess a *quality* of immutability, and not be strictly *immutable* — a quality possessed, in perfection, by the ALMIGHTY alone. Thus it was applied to organic bodies, to denote that while such structures were constantly undergoing molecular changes, the being still lived through this immensity of material change. It would also seem clear that in order that "form" may be maintained, with incessant molecular changes, something more than mere "figure" and "motion" is necessary that these qualities may be maintained.

5th Peculiarity — "SENSATION, or the appreciation of bodily states and wants."

"*Criticism:* That is, sight, hearing," etc. For the appreciation of these bodily states or wants, "a nerve mass or patch" is necessary, "and nerves and motion." "The simplest element of sensation is 'form' and 'motion.'"

Rejoinder: The statement that a "nerve patch" is necessary that sensation may take place, is well known. But this renders the subject no more clear, for it is still asked, what gives rise to the phenomena of sensation in the "nerve patch?" The "form" of the gray matter will not explain the mystery, for there are forms of gray matter, so far as figure is concerned, precisely like those in which this quality is developed; in which the phenomena of *motion* alone is observed, or motor and sensory centres. And, further, simple motion will not explain the peculiarities of sensation; and hence sensation cannot be accounted for on the basis of "form" and "motion."

6th Peculiarity—"The quality of PERCEPTION."

"*Criticism:* That is knowledge through the medium of bodily organs, which must have 'form and motion' in their molecular structure, or perception can not take place."

Rejoinder: Even if admitted that *definite* "form" and motion is necessary, that perception may take place, it will be essential to prove how the simple "figure" of, or motion in, an organic body, can induce the diverse phenomena of Perception.

7th Peculiarity—"The quality of INSTINCT, and in man."

8th. The faculty of REASON.

9th. The faculty of CONSCIOUSNESS; and

10th. The WILL, and mental and moral phenomena in general.

"*Criticism:* These several qualities are each merged into 'form' and 'motion.' Instinct depends on 'form' and 'motion,' and intellect on added brain matter, having a definite and peculiar 'form,' and manifested by molecular motion. The other mental qualities here stated depend on added brain matter."

Rejoinder: The 7th, 8th, 9th and 10th peculiarities are here considered under one head, as they can all be met by one argument. Thus Dr. McElroy reduces them all to form and motion, and he associates them with "nerve patches."

Such peculiarities do not, of course, arise in bone or muscle. But because they are developed in nerve tissue, this fact does not explain the how these phenomena are produced; and unless this be solved (the latter), no new light is shed on what has already been learned by present systems; and hence the uselessness of adopting such a system as "form and motion." Again, this reduction ignores the qualities of matter in general, which is unscientific. Further, the assumption that reason, will, intellect, depend on brain matter, added to that amount of brain necessary to develop instinct, is refuted, from the simple fact that instinct relates to our bodily wants and protection, but the will, intellect, reason, it may be, to matters entirely foreign to the "physical." The one is occupied alone in protecting the individual, the other travels throughout the universe in its operations, and criticizes even the nature of this very "instinct." It is claimed that the simple multiplication of instinct can never produce, through "form" and "motion," the immensely varied phenomena, as to quality, observed in the will, reason and intellect.

While Doctor McElroy has shown much ingenuity in proposing and maintaining this "form and motion" system of medicine, and great boldness in the enunciation of his peculiar tenets, he has failed to convince the members of the "Muskingum County Medical Society" that his doctrines are founded in truth.

The great *desideratum* in the erection of a system of medicine based on physical laws, is *facts*, and these have not been, and must be furnished, ere our profession can be grounded upon physical data.

ARTICLE III.—*Address before the Alumni Association of Rush Medical College*, February 2, 1870. By A. E. AMES, M.D., of Minneapolis, Minn., President.* Published by request of the Association.

GENTLEMEN: Called by the voice of the Alumni of the Rush Medical College to this chair, emotions of sincere thanks well up from my soul for the distinguished favor conferred.

By the rules of our association, the president is required to give an address.

> "Speech is morning to the mind;
> It spreads the beauteous images abroad
> Which else lie furled and clouded in the soul."

It is customary on occasions like this, to congratulate and to welcome your return home. Friends and brothers greet you with the warm grasp of the hand; and, with joyous hearts, enlivened with thoughts of the pleasing memories of the past, you have met here to renew acquaintance, to revive in memory the pleasant days in college—to tell each other your trials, and of your professional life made since you left dear old Rush.

How oft have our minds returned to college days, to call up in memory the pleasant intercourse with students, our relations with teacher, the kindness of treatment, the courteous conduct and pleasant demeanor—each have joyed in such remembrances.

Those days with each of us were so full of thought and aspiration. Before each stood the future as unknown; the periphery, like a faint line of light, quickened hope for a profitable position—for good friends, for wealth, and for happiness.

How earnestly did our beloved professors labor to instruct us in the various branches of a medical education. Perhaps none

* Dr. Ames was the first graduate of the College.

of us have forgotten their warnings and advice given when we went forth from this college to make a life in our profession.

The notes of my journey before me lie:

> "I turn the leaves back faintly,
> The pictures of the past arise;
> Strange forms go by—in memory
> Sweet voices whisper."

In early life, for a short time your speaker was permitted to sit at the feet of a gifted teacher. Since that time, for a period of twenty-six years, he has lived on the frontier—away toward the setting sun, where there was but little to refine in the moral way; and yet in that district Nature was young and very beautiful. That locality has changed, and it is now fully under the influences of industry—of the arts and sciences; onward to scenes more glorious.

On this occasion it may be profitable to turn our minds back for a few years. The achievements of the past have been wonderful—change has rapidly succeeded change for possession and riches. The fair fields of Nature—the prairies of the Northwest that once were so gorgeously ornamented with violets and flowers—now yield golden harvests of grain in great profit to the husbandman. The narrow, winding foot-path made by the red man has been lost, since the railroad has been built, which is now our highway of travel and for commerce along the valleys, across the plains, and over the mountains—and the slow penny-post and coach, through storm, sunshine and mud, at the speed of twenty miles a day; now the mails are transmitted by railway, hundreds of miles a day, and communications are sent by lightning—*instanter*. Many of us have witnessed the adaptation of physical forces, during these decades, to supply the wants of man. We have lived in a famous day of improvements. Our hearts are glad, and our souls are astonished in beholding the great changes.

> "A mighty realm is waking at our feet
> —— to life and beauty,
> —— where millions shall meet,
> And Peace shall reign in majesty sublime."

Chicago, in the year 1836, was a town of 3,000 inhabitants, streets without bottoms, with a cosmopolitan or a heterogeneous composition of races of mankind. Her position was right, the country south, west and north of this locality of the best in virginity on the face of the globe. As the fair land began to change from an uncultivated to a cultivated state, so the city of Chicago began to develop, commerce began to whiten the waters of the great chain of lakes with laden wealth from her port, the railroads soon reached forth to connect her with other cities and districts, and day by day, and year by year, Chicago has astonished the wide world with her growth and commercial strength. Chicago is now a city of 300,000 inhabitants — a marvel to the world. Those who have had doubts in regard to her development have rolled up their skeptical maps and mathematical errors and laid them one side. Chicago is the centre of trade for a great agricultural and manufacturing district — a commercial centre — a home for the fine arts — the seat of education. She bears these honors with becoming grace. Behold her palatial residences, fragrant gardens, ornamental parks, public grounds, streets and boulevard walks — all so beautiful. The public bridges, water and gas works, driveways, balconies, and pavilions, are ornamental and useful; the productions of an intelligent, a wise, and a live people.

"The school-house and church rose side by side."
"Thus moves the tide of great events."

In this unparalleled growth of a city and the development of a country, it is of interest to know and realize that the moral and intellectual faculties of the people have kept pace; that the arts and sciences have lent their strength in the great change; and the virtue and peace of the inhabitants have been strengthened; home, the place of rest, made more secure.

The question is often asked, have these glorious achievements in the arts and sciences — the building strong cities and the developing a nation of nations during the last quarter of a century — resulted in great good and happiness for our race? or have our people been weakened in their moral and physical forces? The evidences are of their great ability. Perhaps you may inquire, how is it with the profession of medicine? and what are the

evidences of the onward progress of the science of medicine? Time will fail to mention many of the evidences of the achievements of the science of medicine made during the last twenty-six years. There are a few persons present here to-day who listened to the first medical lectures given by the lamented Brainard in this city, in his office on South Clark street, in the winter of 1841 and 1842, on Anatomy, Physiology, and Surgery, while he was Professor in the St. Louis University.

The first regular course of lectures of the Rush Medical College was commenced in two rooms on South Clark street, to a class of twenty-two students, December, 1843. Prof. Daniel Brainard, the President of this College, held two chairs; Prof. James V. Z. Blaney (now President) held two chairs; Prof. John McLean one, and Prof. M. L. Knapp one chair. This was the beginning — the lectures were good, never better given in any amphitheater. Since that time great changes have taken place in Professors, buildings and conveniences. Wise and good men have been called as teachers, to wit: Profs. John Evans, Austin Flint, Graham N. Fitch, Wm. B. Herrick, Joseph W. Freer, J. Adams Allen, Ephraim Ingals, DeLaskie Miller, R. L. Rea, Edwin Powell, Moses Gunn, Joseph P. Ross, and Edwin L. Homes, all qualified to teach; gentlemanly, social and kind — *a tower of strength.* To-day it is a proud position to fill either chair in this College.

No College promises more to the student than the Rush Medical College. In an early day its influence was felt throughout the sparsely settled Northwest. Many persons at that time were practicing medicine of a necessity, without a diploma from any institution, or sufficient qualifications. Many of those were men of good character and great energy. They were in the range of the influence of this College. These men were by the regulations of this College induced to come in and attend lectures, four years of reputable practice having been allowed as the equivalent of one course of lectures. Some attended but one course and graduated respectably; but the majority, of their own accord, convinced of their deficiences, attended a second, and some even a third course, before presenting themselves as candidates for the honors of this Institution.

This regulation, though objected to by some at the time, proved

to be in the end an efficient means for the elevation of the standard of attainments among the profession of our country. Each of you will remember the strict and rigid examination you were required to pass in order to obtain your diploma; in your practice, the profit of attending lectures here — especially if you have practiced medicine alongside of other medical gentlemen who were educated elsewhere. Here you became acquainted with the phases of diseases peculiar to this geographical division of our common country, and how to treat them.

It is a fact, go where you please in the medical colleges on the Atlantic and the Pacific coasts, and of the cities of the Middle States, you can not find a more appreciative class than the one in attendance here this session, nor can you find better clinical teaching in any college in America than in this.

Again we are proud to say, that those of our Alumni who were surgeons in the great rebellion, acquitted themselves with honor. None performed better service, as can be proven by their clear records in the office of the Surgeon-General of the United States army.

Since the organization of this college about 1,400 students have received honors of graduation.

The first college building cost $3,500, and was occupied Nov. 5, 1845, and was used during the course of lectures for the session of 1845 and 1846. At that session the Faculty was full.

Soon that building was found to be too small. In the summer of 1854, the first building was enlarged at the expense of $10,000.

During the summer of 1867, the old building was found insufficient; and this elegant edifice was erected and dedicated with appropriate ceremonies to *Science and Humanity*, October 2, 1867.

Gentlemen: This, as a college building, is unequaled in America — an evidence that the science of medicine is keeping pace with other signal developments.

Perhaps you, my kind friends, may not think it wrong for me to say a few words of him whose fame has gone into all lands; that Professor Daniel Brainard's foresight and great energy did more than any one man to build up this College. My tongue was never learned to speak eloquent words, or to pronounce obituaries for the great and good, yet for the love we bear to his name, it is

my privilege to award great credit to his memory — to the brilliant operator — the surgeon. He was the founder of the Rush Medical College. This edifice is a monument to his labors, of his attainments, his faithfulness to the principles of his profession and of his renown.

None who ever heard him speak can forget his fervency in address—his gentlemanly and courtly manners—ever kind, genial, and true—an example to all who would live the life of a manly man and a teacher.

This stately edifice is his monument—ye are his building. "He died like a man, and fell like one of the princes." The poet Dowler well said of *him* whose name is so dear to science:

> "In labors great, in knowledge deep,
> His work well done—let Brainard sleep;
> Erect his tomb hard by the lake,
> Where waves on waves resounding break,
> And chant upon the shelly shore
> His requiem, for ever more."

Another of those whose labors in the earlier days of this College contributed largely to its success, has passed away from earth. A generous and social gentleman, an enthusiastic student and teacher, beloved by all who knew him, was the late William B. Herrick. As an anatomist he had but few equals. As a teacher of physiology, his expansive mind could not be confined within the narrow limits of the books. His acute perceptions, and his unusual powers of generalization led him to teach *truths*, ideas and theories far in advance of his day, many of which find their full confirmation in recent discoveries and observations.

Peace to his ashes! and honor to his memory!

As yet, every interest in our country is youthful and promising. Placed in such a field of activity, with so much to do for city, country, humanity, and God, no one should "sit idly waiting for some noble work to do." Then let us encourage every effort for the education of our people, make useful the arts and sciences, cultivate grains, fruits and flowers, build towns, cities, schools, churches, colleges, and railways. The records of our country—of war, of education, of peace and of life—tell of the noble deeds of those of our own number, who were educated here. The joy of my heart is

full on this occasion, in contemplating the changes wrought in this fair land since the year 1836; thankful to see so many of the Alumni present—to have the privilege of meeting in a temple so beautiful. When the science of medicine is taught by learned men—courteous, manly—*their works praise them.* All of these noble men are members with us.

The science of medicine represents all sciences. "The arts are grouped in beauty near with thoughtful science, who their work commands."

Our studies have prepared us for other duties beside those of social life. It is marvelous that

> "Immortal genius in one day should cause
> Art and science to spring to birth.
> Genius pointed her scepter toward the waste
> Of hill and dale, and far-extended plain."
> The inventor has been busy with his plan
> To lighten toil to will of man.
> The discoverer has found the pathless way,
> As truth divine has led the way.

So that the farmer gathers his golden harvest with machinery; toil is lightened by giant powers.

There is another field of pleasure and usefulness. Nature is grand—comprehensive, a system of many circles, each dependent upon the other—ever so minute and delicate in grade—with harmony in action in crystals, plants, animals, man:

> —"The chain is love,
> Combining all below and all above.
> Nothing stands alone.
> The chain holds on—
> With thoughts well freighted,
> The chain holds strong embrace."

Our studies qualify us for the examination of the elements, the various forms of life, the manipulations of the world without, as well as the world within us.

To the younger members of alumni, we give you a glad welcome to membership. Despise not the day of small things; little by little, step by step, success will attend you in your enterprise. It is early morning with you; hence, arise and shine, and make your own summers.

"Pleasant thoughts in the day dream of life,
When youth and ambition join hands for the strife."

You have drank at the crystal fountain. You are now qualified to join in the march of fame. If you are good anatomists, you will soon become good physiologists, pathologists and surgeons. Never permit yourselves to become "rusty" in your knowledge of anatomy. When you prescribe a dose of medicine, do it in accordance with your understanding of the laws of chemistry and the laws of life. To become proficient in your calling, pay strict attention to your books. You will find great pleasure in your study of physiology. There is no scene that will gratify you more than that when you behold those mysteries of life. Be cautious in your conclusions, and modest in your opinions. Consult your books often; they are your friends. We would have you to be good citizens; to take active duties in civil life; to take a noble part in any good work that will give character to yourself and your profession.

Changes are pluming mighty thoughts—
Thoughts that wing their way far onward,
Onward to scenes more glorious.

If you have an opportunity, teach the young; such opportunities offer in graded schools. Be always ready to assist in regulating civil society; in establishing schools, seminaries, churches; and in caring for the unfortunate. Please to ennoble labor in nature's plan. It should be virtue's brightest diadem. Speak kind words to the new beginner in our profession, and support those who are just entering upon the profession. This is the golden rule:

Walk erect, like men.

So conduct yourselves as not to become involved in political strifes—sectarian animosities. Demean yourselves manly to the young and old—to the rich and poor—to all men. Have mercy, have charity, have liberal views, that you may bless all, and God will bless you.

You are about to take the first steps that will form your character. Every act—the manner you spend your time—the attention you give your profession and your home, will form your

character. You will stand as representatives of the medical profession. Then, be careful—let your demeanor be just, liberal, wise, kind and professional.

If you err, perhaps it will be for a want of a proper division of your time. Have a time for every duty—use little moments with strict economy. The little savings will make you rich. Keep notes of your cases. Give yourself a clinic on every case you have. If an epidemic prevails, make notes of all of its peculiarities—report important cases—your inventions and your discoveries to older minds, previous to publication. Such faithful labor will lead you to wealth, to honor, and to a good reputation.

You have been honored with graduation, and received as members of alumni. Your aspirations have begun already to mount up—anxious to take active duties.

With pride, the older members have received you as members of this Association, and with pride we can commend you to your calling.

Before you is your life—the rainbow of hope is spanned. Will your pathway be pleasant and profitable? or will it be beset with trials, dangers and temptations?

Our education, above all others, fits us for social life, for a fine appreciation of love, of virtue, of honor, of integrity—for a large and a comprehensive view of the duties of life that elevates the mind.

Dear friends, there is a lion in the way—*insobriety*. Good and noble men have been wounded by him. He is a monster—a dragon. If thine eye is not dim, behold the moral and physical destruction made on the human race. That happy family, whose hearts were as buoyant as the morning breeze, and as happy as the bird that flits thereon—a change is wrought. Their souls are now chafed and deranged. Around that sublunary haven, where once gently wafted the soft and spicy breezes of true love and friendship, the atmosphere is now glistening with the chilly dews betokening the approach of winter. No sunny face or sparkling eyes greet you. Children are there taught the broad road to sin. If thine ear is not heavy, where once was heard the prayer of praise, is now cursing; where once the notes of joy were sung, and the harp notes stealing, is mourning, sobbing, and crying; and where once the trowel of devotion spread liberally the cement

of love and harmony, now angry and discordant passions reign as the tyrant of the realm, scattering confusion, disease, misery and death. Shipwreck is made of virtue, of hope, and of joy. Misery is in the post of peace.

Be assured, a perverted pleasure or principle produces a corrosive trouble.

Gentlemen: We have taken an impressive survey of the achievements of the past, and viewed them in their blended lights and shades, and seen that the small town has become a marvelous city. The vast, uncultivated prairies now yield plentiful harvests, wealth and commerce active, and medical science developing new truths. Medical men have caused the lamp of knowledge to send forth its fair rays of light to shine away the clouds of error and superstition, that ignorance and human woes might give place to health, peace and happiness. Its light beams brighter, revealing the true economy of life.

> Around the man of learning,
> The arts and sciences at command,
> To lay richest treasures at his feet.

Let us see to it that the honor, the reputation and the usefulness of our Alumni are on the side of genius. That the true light that shineth away the darkness, that guides the intellect in the way of invention and of discovery, and enables the mind to bring into use the elements for the support and protection of our race.

You will soon return to your fields of labor.

> Home is the dearest place on earth;

Make yourselves pleasant homes; ornament them with fruits and flowers—

> " With margin green and beautiful,"
> With roses and nodding lilies,
> To gladden the sunlight of smiles.

In your pleasant homes, forget not to cherish in your minds in a becoming manner a true love for " Rush."

> " From the heart's sunshine, a ray often mounts,
> To break on the lips with a smile;
> Many a word from the lips we love much,
> Strikes a chord of love's true emotion.".

Ever will it be my prayer that God will bless this temple, this college, its graduates, and all true members of our noble profession everywhere.

When time with us is no more, may one and all be admitted to the banquet and the joys of heaven.

ARTICLE IV. — *Aortic Aneurism — Pathological Specimen.*
By F. J. VANVORHIS, M.D., Stockwell, Indiana.

DURING the winter of 1868–9 I procured a subject for private dissection, in which there was an aneurism of the arch of the aorta of such unusual size as, in my judgment, to be worthy of record.

Subject was a man about 55 years old, 5 ft. 4 in. high, and weighed about 180 pounds.

The thorax was opened in presence of my student, Mr. J. T. McShane.

The aneurism was also seen and examined by Dr. M. Baker, and his students, Mr. Wells and Mr. Cowan.

The aorta was dilated from within one inch of the aortic valves to the middle of fifth dorsal vertebræ.

The following measurements will give some idea of size and shape of the aneurism:

Circumference of aorta, just outside of the pericardium, 8¾ inches. Innominata artery completely obliterated, and right subclavian and right common carotid separated 1¼ inches.

Circumference of aorta between these vessels, 9¼ inches; between right and left common carotid, 9 inches; between left common carotid and left subclavian, 8¼ inches; about the middle of descending part of arch of aorta, 6¼ inches.

Aneurism was ruptured one inch posterior to the origin of left subclavian.

As near as could be judged, the right ventricle was increased one-half in capacity, and its walls very thin and flabby. The capacity of left auricle was at least doubled, and its walls very thin. The left ventricle was considerably dilated. The walls were

thinner than natural, and contained patches of calcareous matter, as did the coats of most of the arteries.

The right common carotid was two or three times its normal size. Femoral arteries so small as to appear almost impervious.

No history of the case could be obtained. The physician in charge of the case did not detect the aneurism, but supposed death occasioned by pneumonia. The want of a previous history deprives this case of all interest, except what belongs to a pathological curiosity.

Original Translations.

ARTICLE I.— *Analysis of a Case of Imperfect Bisexual Hermaphrodism in Man.* By DOCTOR E. GOUJON, Laureate of the Faculty of Paris. From Robin's Journal de l'Anatom. et de la Pysiol., etc., Nov. and Dec., 1869.

IN the course of the month of February, 1868, a young man employed in the administrative department of a railroad, committed suicide by carbonic asphyxia, in a mean apartment upon the fifth floor of a house in the Rue de l'Ecole de Médecine. M. Regnier, one of the municipal physicians, and the commisary of police of the district, informed of the fact, repaired to the residence of the suicide, and found upon a table a letter left by him, in which he stated that he had sought death to escape the sufferings which constantly beset him. These gentlemen, from the external appearance of the body, and from the information which they gathered from the janitor of the building, who saw the young man every day, suspecting nothing which could indicate the sufferings to which he alluded, concluded to examine the genital organs, supposing that he might be suffering from some syphilitic affection which, as is well known, frequently plunges its victims into profound marasmus and great mental depression, which often drives to suicide certain subjects already naturally melancholic.

M. Regnier, at this examination, detected immediately a remarkable anomaly of the external genital organs, and recognized a case of masculine hermaphrodism of the most striking character. In truth, it would be difficult, as will be seen by what follows, to find a mixture of the two sexes carried to a greater extent, in all that pertains to the external genital organs. I was informed of the case by Dr. Duplomb, who, like myself, regretted that the incident should be lost to science, and together we urged M. Regnier to use all his influence with the commissary of police, to induce him to permit us to make an autopsy, and to remove the different parts involved in the anomaly. This permission was granted to me on condition that there should be associated with me some physician having official position; the presence of M. Houel, adjunct to the Faculty, was secured, to whom, as well as to Dr. Regnier, my thanks are due for the disinterestedness with which they abandoned to me completely the investigation of this remarkable case. The case which I shall report is certainly one of the most complete of its kind which science possesses. Since the individual, who was its subject, can be traced up so to speak, from his birth, until his death, and since the examination of the body as well as the autopsy could be made with all the care desirable. The report is especially complete, from this exceptional fact, that the subject took care to leave us long memoirs, in which he initiates us into all the details of his life, and of all the impressions which were produced in him, at different periods of his physical and intellectual development. These memoirs* have so much the more value, inasmuch as they emanate from an individual possessed of a certain amount of culture (he had a certificate as instructress, and had received the first place in the competition at the Normal school for its diploma) and endeavoring to account for the different impressions which he experienced. The position of this person is not without its parallel. Indeed, there may be found in Geoffrey de St. Hilaire, observations which exhibit great analogy with those which I report.

The hermaphrodite, whom we are discussing, was inscribed upon the civic registers as belonging to the female sex; he was

* M. Tardieu having become possessed of these memoirs, has, with his usual complaisance, consented to communicate them to me.

reared with young girls, in the midst of whom he passed his infancy and his youth. The physical modifications which were developed subsequently forced him to demand a correction of the civic registration, which definitely returned him to his own sex, which was masculine, although upon a superficial examination of the external genital organs one would have been much more disposed to class him amongst the women: we quote a passage from his memoirs, in which he enumerates rapidly his different positions: "From my arrival in Paris dates a new phase of my double and perplexing existence. Reared during twenty years in the midst of young girls, I was at first, and during two years at most, chambermaid; at sixteen and a half I entered upon the situation of assistant teacher (*éleve maitresse*) at the Normal school of ———; at nineteen years I obtained my certificate as instructress (teacher's certificate); some months after I directed a boarding-school of some note in ———. I left it at twenty-one years; this was in the month of April; at the end of the same year I was in Paris on the ——— railroad."

The autopsy which we were enabled to make, enabled us to correct the first decision made as to his sex during the greater portion of his life, and to confirm the accuracy of the diagnosis, which had, in the last place, replaced him in his true social position.

After what has been said, it will be seen that the present case raises many physiological and medico-legal questions. The conformation of the external genital organs of this individual permitted him, although he was manifestly a man, to play in coition the part of a man or woman indifferently; but he was in either case sterile. He was enabled to perform the part of a man in this act, by means of an imperforate penis susceptible of erection, and attaining at that time the dimensions of the penis of many regularly conformed individuals. As will be seen later, by its description, this organ was rather a voluminous clitoris than a penis; indeed, sometimes the clitoris in woman will attain the size of the index finger. Erection could be accompanied by ejaculations and by voluptuous sensations, as he informs us in his memoirs. This ejaculation did not occur from the penis which was imperforate, as has been already indicated. A vagina, terminating in a *cul-de-sac*, and in which the index finger might be inserted without resistance, permitted him to play equally well

the part of a woman in the act of coition. To this vagina, situated as it is ordinarily in woman, were annexed vulvo-vaginal glands opening on each side of the vulva, and by the side of the opening of two other small conduits, serving for the emission or ejaculation of semen.

I had made the anatomical description of the subject of this report, when I learned from M. Professor Tardieu that this unfortunate had been the subject of a medico-legal report of a distinguished physician of Rochelle, at the time when the civil tribunal had been required to pronounce the judgment which should modify his civic *status* and replace him in his true sex. This report being very accurate and well drawn, I give it entire, and should have little to add thereto, as far as concerns the external genital organs, had not some modifications supervened during the time which separated the two examinations. The following is the report as it appears in the *Annales de Médecine légale*:*

"I, the subscriber, Doctor in Medicine, residing at la Rochelle, Department of la Chareute Inférieure, state the following to whom it may concern:

"A child, born of the married couple B., at St. Jean-d'Angely, the 8th of November, 1838, was declared at the civic registration to be a girl, and although registered under the names Adelaide-Herculine, her parents acquired the habit of calling her Alexina, a name which she has continued to bear up to this moment. Placed in female schools, and later, in the normal school of the Department of la Chareute-Inférieure, Alexina secured, two years ago, a teacher's certificate, and performed the functions in a boarding-school.

"Complaining of pains which she experienced in the left groin, it was decided to subject her to an examination by a physician who could not repress an expression of surprise at the sight of the genital organs. He communicated the result of his observations to the mistress of the school, who endeavored to tranquilize Alexina, by telling her that what had been observed belonged to her organization, and that there was nothing about which she

* *Annales d'hygiene et de Médecine légale.* 1860. 2nd séri, t. xiv., p. 206 — Question d'identité; vice de conformation des organs genitaux externes; — hypospadias; erreur sur le sexe, par le docteur Chesnet (de la Rochelle).

should be alarmed. Alexina, preoccupied, however, with a sort of mystery, of which she perceived herself to be the object, and with some expressions which escaped from the physician during his visit, commenced to scrutinize herself more attentively than she had hitherto done. In daily intercourse with young girls of fifteen to sixteen years, she experienced emotions which she controlled with difficulty. More than once during the night her dreams were accompanied by indefinable sensations. She felt herself moistened, and discovered, in the morning, grayish stains upon her linen.

"Surprised, as well as alarmed, Alexina confided this novel state of her mind to an ecclesiastic, who, no less astonished, doubtless, induced her to take advantage of a journey which she was about to make to la Rochelle, where her mother resided, to consult the bishop.

"She, in fact, presented herself to the bishop, and at the termination of this visit, I was instructed to examine Alexina with care, and to give my opinion upon her true sex. From this examination result the following facts:

"Alexina, who is in her twenty-second year, is of dark complexion; her height is 1.59^{m} (5 ft. 2½ in.) The features of her face present nothing very characteristic, and remain undefined between those of a man and those of a woman. The voice is habitually feminine; but at times, in conversation or in coughing, there are mingled with it tones grave and masculine. A slight down covers the upper lip; some hairs of beard are perceptible upon the cheeks, especially upon the left. The chest is that of a man; it is flat, and without any appearance of mammæ. The menses have never appeared, to the great distress of her mother and of the physician whom she has consulted, and who has found his entire skill powerless to superinduce the appearance of this periodical flow. The upper limbs have not the rounded form which characterizes those of well-formed women; they are very brown, and slightly hairy. The pelvis and the hips are those of a man.

"The sub-pubic region is furnished with the most abundant black hair. If the legs are separated, a longitudinal slit is perceived, extending from the sub-pubic eminence to the border of the anus. At the upper part there is a peniform body, four to

five centimetres in length from its point of insertion to its free extremity, which has the form of a glans covered with a prepuce, slightly flattened below, and imperforate. This little member, as far removed by its dimensions from the clitoris as from the penis in its normal state, can, according to the statement of Alexina, swell, harden and elongate. However, the erection, properly speaking, can be only limited, this imperfect penis being bound down inferiorly by a sort of bridle, which leaves only the gland free.

"The labia majora, apparent as may be observed upon each side of the slit, are very prominent, especially the right, and are covered with hair. They are, in reality, only the two halves of a scrotum remaining divided. They are, in fact, manifestly felt to be, upon handling them, an ovoidal body, suspended to the cord of spermatic vessels. The body, a little less developed than in the adult man, seemed to us to be nothing else than the testicle. Upon the right it had altogether descended. On the left it had remained higher; but it is movable, and descends more or less when it is pressed. These two globular bodies are very sensitive to pressure when it is somewhat strong. It was apparently the tedious passage of the testicle through the inguinal ring which occasioned the severe pains of which Alexina complained, and rendered necessary the visit of the physician, who, learning that Alexina had never menstruated, exclaimed: "I believe it; and she never will!"

"At the distance of a centimetre below the penis, is an urethra entirely feminine. I introduced into it a sound, and permitted the escape of a small quantity of urine. The sound being withdrawn, I induced Alexina to urinate in my presence, which was accomplished by a vigorous jet, directed horizontally to the outlet of the canal. It is very probable that the semen might also be ejected to a distance.

"Lower than the urethra, and at about two centimetres lower than the anus, is found the orifice of a very narrow canal, into which I could have succeeded in introducing the extremity of my little finger had not Alexina withdrawn, and seemed unable to bear the pain. I then introduced a female sound, and ascertained that this canal was five centimetres in depth, and terminated in a *cul-de-sac*. My index finger, introduced into the anus,

detected the point of the sound through the walls which might be termed recto-vaginal. This canal is, then, a sort of vaginal outlet, at the bottom of which no vestige of a uterine neck can be detected. My finger, carried very high into the rectum, could not, through the parietes of the rectum, detect the uterus. The thighs and the legs, on their posterior portion, are covered with an abundance of black hair, as in the most hirsute man. From the above facts what shall we conclude? Is Alexina a woman? She has a vulva, labia majora, a female urethra, independent of a sort of imperforate penis. May not this be a clitoris monstrously developed? There is a vagina, very short indeed, very narrow, but, in fact, what is it if it is not a vagina? These are all feminine attributes. True, but Alexina has never menstruated; all the exterior of the body is that of a man. My examinations have not enabled me to detect a womb. Her tastes, her inclinations, attract her towards women. At night, voluptuous sensations are followed by spermatic emissions, the stained and thickened. To sum up, finally, ovoidal bodies, a cord of spermatic vessels are manifest to the touch in a divided scrotum. "These are the true evidences of sex. We may, therefore, conclude by saying: Alexina is a man; hermaphrodite, without doubt, but with evident prodominance of the masculine sex. Its history is, in its essential parts, the nearly complete reproduction of a case narrated by M. Marc, in the *Dictionaire des Sciences Médicales*, in the article, 'Hermaphrodite,' and cited, likewise, by Orfila, in the first volume of his *Médicine legale*. Marie Marguerité, of whom these authors speak, has solicited and obtained, from the tribunal of Dreux, the rectification of her sex upon the civic registers."

At the time when I proceeded to the examination of the cadaver, the report which I have just read had been made eight years, and the individual who was its subject, was in his thirtieth year.

The following is the condition which this unfortunate being presented in his miserable retreat, similar to which too many exist still in Paris, to be removed perhaps by the incessant progress of hygiene. A miserable pallet, a little table, and a chair, formed all the furniture of the place, in which four persons could scarcely stand. A little earthen furnace, in which only

ashes remained, was found in a corner by the side of a rag containing wood charcoal. Upon the bed, the body was placed upon its back, partially dressed; the face was cyanosed, and an efflux of black and frothy blood occurred through the mouth. The height was the same as that noted in the report of M. Chesnet; the hair was black, quite abundant, and fine; the beard was equally black, but was not very abundant upon the lateral portions of the face. It was much thicker upon the chin, and upon the upper lip. The neck was small, and quite long, and the larynx was but little prominent forward. The voice, according to information gathered from those who had seen him, was not strongly vibratile. The chest had the ordinary dimensions and conformation of that of a man of this height, and no hair could be found upon it except around the nipples, which were black, and but slightly prominent. As to the breast, there was no more than is usual in a man of the same degree of fatness.

The lower and upper limbs were covered with very fine black hair, and the muscular protuberances were more decided than they are in women. The knees were not inclined towards each other; the feet and hands were small; the pelvis was not more developed than it should be in man.

STATE OF THE GENITAL ORGANS.

Upon the mons-veneris, which was prominent, there was an abundance of black hair, long and curled, which covered, also, the perineum, and the parts which simulated the labia majora, completely surrounding the anus — an arrangement which is altogether absent in women. In its normal position is seen a penis, regularly inserted, of 5 (1.95 in.) centimetres in length, and of 2½ (.97 in.) centimetres in diameter, in its flaccid state. This organ was terminated by an imperforate glans, flattened laterally, and completely uncovered by prepuce, which formed a crown at its root. This penis, which did not exceed in volume the clitoris of certain women, was slightly recurved beneath, being retained in this position by the inferior portion of the prepuce, which is finally intermingled with and lost in the folds of the skin which form the labia majora and minora.

A little below the penis, and in the same position which it occupies in the female, was found an urethra analogous to this

latter. It is easy to introduce through this, a sound, and thus to reach the bladder, which we emptied in this manner. Lower than the urethra was seen the orifice of the vagina, and at the moment when we made the examination, there was a slight efflux of blood from the vulva. Doctor Regnier, who also recognized it, believed that it was occasioned by the repeated introduction of the finger.

This was indeed the only explanation admissible for this phenomena, the subject of the inquest never having had, as has been already explained, periodical effusions of blood from the vulva; and the examination of the internal organs readily furnishes the explanation of this.

The index finger could be readily introduced throughout the whole length of the vagina; but nothing was felt at the extremity of the finger which recalled the uterine neck. There was recognized, on the contrary, a *cul-de-sac*.

The length of this vagina was 6½ centimetres (2.5 in.) Upon the lateral portions, and throughout its whole length, the touch detected two small hard cords, placed below the mucous surface, and which were, as we shall describe hereafter, the ejaculatory ducts which finally open, one upon each side of the vulvar orifice. The vaginal mucous membrane was smooth and much injected, and was perceived to be covered, over its whole extent, with tesselated epithelium, such as that which invests the female vagina. The existence of little follicles was determined in the thickness of this mucous membrane. Near the vulvar orifice were found some circular folds of mucous membrane, but they do not suggest, by their arrangement, the existence of a hymen. In the space comprised between the folds of the prepuce, which hold the glans downward, and the vulvar orifice, were found quite a large number of small orifices, of excretory canals of glands situated beneath, and by compressing slightly the skin of this region, a gelatinous, colorless matter could be expressed from these little holes, which was nothing else than inspissated mucus.

The anus was situated 3½ centimetres from the vulva, and presented nothing abnormal. Upon each side of the erectile organ (penis or clitoris), and forming a veritable groove, in which this lay, were two voluminous folds of skin, which were the two lobes of a divided scrotum. The right lobe, much more voluminous

than the left, contained, evidently, a testicle of normal size, and of which it was easy, through the skin, to trace the cord up to the ring. The left testicle had not completely descended, a large portion being still engaged in the ring.

EXAMINATION OF INTERNAL ORGANS.

Upon opening the body, it was seen that the epididymis alone of the left testicle had escaped from the ring. It was smaller than the right. The vasa deferentia approximated behind and below the bladder. They had normal relations with the vesiculæ seminales, whence arose the two ejaculatory ducts, which made their exit and penetrated under the vaginal mucous membrane of each side as far as the vulvar orifice. The seminal vesicles, of which the right is a little more voluminous than the left, were distended with semen, which was of normal color and consistence. Microscopic examination of this liquid exhibited no spermatozoa, either in that taken from the vesiculæ, or in that from the testicles. Moreover, in that testicle which had passed the ring, and in the corresponding vesicle, some voluminous round bodies were seen, which resembled the mother-cells of the spermatozoa, or male ovules of M. Robin. It was easy to unroll the tubuli of both testicles, and the microscope showed nothing abnormal in that of the right side, but in that of the left, which was partially in the abdomen, the tubuli were fatty, and the parenchyma of the testicle had a yellowish tint that the other had not.

A little canula being placed in each of the vesiculæ seminales, I introduced an injection of milk in order to ascertain positively the direction of the ejaculatory ducts. This milk escaped, by jets, at the orifice of the vulva, upon each side, as I have already indicated. The bladder, in its normal position, was large. Distended by an injection of water, it extended above the pubis. Nothing suggested by its form the presence of ovaries or uterus. There was recognized, however, much above the *cul-de-sac* which forms the vagina, a thick, fibrous patch, upon which were displayed the vesiculæ seminales, which extend very high behind the bladder, and retains the vagina in a fixed position, on each side, suggesting, up to a certain point, the form of the broad ligaments; but the most attentive dissection does not admit the deter-

mination of any assimilation to an uterus or ovaries. It was, moreover, impossible to detect any orifice at the bottom of the vagina. It terminated in a complete *cul-de-sac*. The relations of the peritoneum with the bladder were normal, and it passed much above the vaginal *cul-de-sac*, and did not nearly touch its fundus.

The presence of two valvo-vaginal glands was readily determined by dissection, having their normal position and volume, as well as their little excretory conduits, opening a little below the ejaculatory seminal ducts. Upon pressing these glands, quite a large quantity of viscous liquid escaped.

Upon the urethra, and in the neighborhood of the neck of the bladder, there was likewise found a little gland, which was certainly a prostate, but slightly developed.

DISCUSSION OF THE PRECEDING FACTS.

While it might appear extraordinary that an error about the sex of an individual could have been prolonged during so long a period, science nevertheless possesses quite a number of examples, of which some exhibit the closest analogy to the one under discussion. It is true, indeed, that the majority of these cases had not been the objects of attentive examination on the part of the physicians, and the physiological demonstration of the two sex was due most frequently to a fortuitous circumstance. One case may be remembered, "cited apropos of a memoir of Geoffroy Saint-Hilaire, of an hermaphrodite monk, considered as a man, and who, in spite of his vows of chastity, disclosed, in parturition, that his sex was not the same as that of his companions of the cloister." (L. Le Fort. *Vices de conformation des organes genitaux.*)

Schweikhard reports likewise the history of an individual registered as a girl, and considered as such up to the moment when he asked in marriage a young girl already *enciente* by him. In this individual the gland is imperforate, and the urethra opened below it; the urine, in escaping, following the horizontal direction of the penis. The author does not mention whether he was enabled to determine the place of emission of the semen.

Louis Caspar, in a treatise analysed by Martini, relates that "upon the complaint of a pregnant woman, who accused a mid-

wife of having done her violence, and of having had sexual intercourse with her, the midwife was examined. It was determined that the clitoris, although more developed than usual, had not sufficient size to effect coition; that the vagina was so narrow that the extremity of the little finger only could be inserted into it, and there existed upon one side a little tumor, which might be supposed to be a testicle."

It would be easy to multiply examples of this sort; and it would be even profitable to science that all the documents which it possesses upon this question should be collected into compendium, which would become a precious guide to physicians who might be called upon to give opinions or to pronounce judgment upon those who should be involved in this anomalous condition. It would be readily apparent from such a work, that if it is sometimes difficult and even impossible at birth to recognize the true sex of individuals, the same difficulty would not exist at an advanced age, and especially near the age of puberty. There would be manifested at this period, in persons who have been the victims of an error, predilections and habits which are those of their true sex, the observation of which would aid considerably in designating their social position, if the condition of the genital organs and of their different functions should not prove sufficient to reach the same end. From such a reunion of observations, this fact would finally be clearly deduced, should its demonstration be still necessary, *that hermaphrodism does not exist in man and in the higher animals.*

Surgery is often all-powerful to rectify certain vices of conformation designated under the name hermaphrodism, and several cases of remarkable success are found reported in the thesis of M. Leon Le Fort; amongst others, that of Louise D——, borrowed from reports of M. Haguier, and for whom this surgeon made an artificial vagina with complete success. The case of Marie Madeleine Le Fort will be remembered, upon which Beclard was commissioned to report in 1815, and who died in 1864, at l'Hotel Dieu. Notwithstanding the very accurate report of Beclard, who decided that she was a woman, she was nevertheless considered, during forty years, by the majority of the physicians and surgeons of the Hospitals, who had opportunities for observing her in the different clinics at which she was presented, as belonging to the

male sex. The autopsy, made by M. Dacorogna, interne of the ward in which Marie Madeleine Lefort died, not only demonstrated that Beclard was right, and that she possessed all the attributes appropriate to the sex to which he had assigned, and though she differed from other women only by a clitoris more voluminous than it should be, and an imperforation of the vagina, which was closed by a rather thick membrane, and the simple incision of this membrane would have sufficed to restore the subject definitely to her sex. Beclard had, moreover, proposed this operation at the time of making his examination.

For a long time many different causes have been adduced to explain this kind of anomaly. The aid of comparative anatomy, especially, has been frequently invoked; but since the brilliant labors of M. Coste, and of other modern embryogenists, it has been particularly of developmental anatomy, or embryogenesis, that the light necessary to resolve similar questions has been sought. It is indeed the study of embryogenesis which teaches us that the different stages of arrest sustained by embryos form the origin of different deformities or monstrosities which are only too frequently submitted to our observation, and which constitute, to a great extent, pathological anatomy, and the whole science of monstrosities or terratology. I shall then lay under contribution the science of embryogenesis, to explain the state of the external genital organs of the subject of this report. According to M. Coste, the external genital organs only commence to make their appearance from the fortieth or forty-first day, and then that the corresponding internal organs have already commenced their development several days before. There may be perceived, then, at this fœtal period, at the base of the caudal protuberance, in the little slit which is more and more hollowed out, and which should, at a later period, communicate with the bladder, the vagina and the rectum, — there may be perceived, I repeat, at the upper extremity of this little slit or groove, two little roundish bodies, which should, in man, constitute the origin to the corpora cavemosa penis, and in woman to the clitoris and the labia minora.

These two little eminences are united by their superior margins, and form, between their inferior margins, which remain free, a little gutter which should remain permanently in woman, but in man is transformed into a complete canal, and constitutes the

urethra. The absence of this union, in man, of the free margins of this slit or gutter, establishes the vice of conformation which is designated by the name hypospadias, which is the condition of the subject now under examination. Below these little eminences just referred to, two other are soon developed, which should form the scrotum of man or the labia majora of women. It is, therefore, the non-union of the two lobes of the scrotum which constitutes what I have designated under the name of labia majora in the subject under examination. The analogy which may be established between the different glands which are found in the vagina of woman and those of the male urethra authorizes as perfectly, to affirm that the valvo-vaginal glands of our subject were no other than those of Cowper, or the bulbo-urethral glands; those in the vagina which terminated in a cul-de-sac, were the urethral glands of man. This vaginal cul-de-sac itself was nothing else than the urethra, which should have remained in its normal state.

Professor Courty, who has extensively investigated the organic analogies existing in different mechanisms, justifies likewise, in a very clear and plausible manner, those which he establishes between the membranous portion of the urethra in man and the vagina in woman. "The vagina, indeed, is developed in the blastema, intermediate to the bladder and the rectum, immediately below the middle perineal aponeurosis, by the formation in the vesico-rectal interspace, of a canal which extends until it meets at one extremity the vulvar opening, and at the other the uterine neck. It is at the same identical point, and in the same manner, that the membranous portion of the urethra of man is formed in front of the urethral crest (ridge formed by the approximation of the two seminal ducts), and behind the groove or gutter of the penis, which is soon converted into a canal by means of an inferior joint extending to the bulb, inclusive.

"From this analogy, confirmed elsewhere by all sorts of proofs which cannot be reproduced here, there is evolved a consequence which permit an apparent paradox at first sight; that is to say, that in man there is properly speaking no urethral canal, whilst there is really one in woman. In man the canal through which the urine escapes from the bladder is nothing else than the analogue of the vulvo-vaginal canal of woman, developed differ-

ently and accommodated to other uses. In man the urinary passages, strictly speaking, terminate at the neck of the bladder. The canal which continues thence belongs, by its origin and termination, to the genital apparatus. It is, in truth and pre-eminently, the ejeculator of semen. *It only lends itself* to the excretion of urine, this liquid traversing it from one end to the other, passing successively through its prostatic portion (uterine neck, its membranous (vagina), and its bulbo-spongiose (vestibule); additional proof of the differences of structure or of destination which nature can impress upon organs fundamentally identical."*

The position of the ejaculatory ducts in the subject of this report confirms the theory of M. Courty; it is apparent, indeed, that in the normal development of this urethra transformed into a vagina, the external orifice of these little canals would correspond to the situation of the verumontanum.

Among the medico-legal questions which might be raised by a case similar to that of Alexina, is that in which an expert might be called upon to pronounce upon the aptitude for marriage and reproduction. It would be assuredly very embarrassing to decide such a question; but I do not believe that there would have been sufficient authority, after a careful examination of the genital organs, to decide negatively in the one case or the other. Procreation being the natural end of marriage, Alexina was the bearer of organs characteristic of his sex, whose functions were performed. The disposition of the ejaculatory ducts was contrary to that which permitted the passage of the semen directly to the bottom of the vagina; but it is well understood to-day that fecundation may result even when the seminal fluid impregnates only the entrance to the vagina. Science possesses numerous examples of subjects affected by hypospadias, whose external urethral orifice was more or less approximated to the scrotum, who nevertheless became the fathers of several children; and in these cases the authenticity of the paternity was demonstrated by the hereditary transmission to their children of the vices of conformation of which they themselves were the subjects.

* A. Courty, *Maladie de l'uterus et de ses annexis.* Paris. 1867, in -8, p. 37.

The seminal fluid taken from the vesicle corresponding to the descended testicle, in the subject of our notice, contained no spermatozoa; for a much stronger reason, the semen taken from the vesicle of the testicle which remained engaged in the ring should likewise have been destitute of it,* and this appears to be the rule for testicles which do not accomplish their complete migration; but this state of affairs could be only temporary in the case of Alexina, for the testicle which had completely descended, and at some future time the existence of spermatozoa in the seminal liquid might have been established. It is well known that, in men who have every appearance of health, there is sometimes a temporary absence of spermatozoa, under some peculiar influence, and that they may reappear subsequently. This might very well occur in the subject of our notice. Contrary to the cases of Follin, the numerous and interesting cases of monorchidia reported by E. Godard, demonstrate in a constant manner the presence of spermatozoa in the seminal fluid of individuals who had but one testicle in the scrotum.

* Follin has likewise reported his observations of individuals who had but one testicle in the scrotum, and in whom no spermatozoa could be found either in one side or the other. (See also the researches of Godard, *Sur la monorchidie et la cryptorchidie*, 1 vol., in -8, 1860; et, *Comptes Rendus et memoires de la Société de Biologie*, 1859, with plates.)

Editor's Book Table.

[NOTE.—All works reviewed in the columns of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. Keen and Cooke, whose catalogue of medical books will be sent to any address upon request.]

Clinical Lectures on the Principles and Practice of Medicine. By JOHN HUGHES BENNETT, M.D., F.R.S.E., Professor of the Institutes of Medicine, and Senior Professor of Clinical Medicine in the University of Edinburgh, etc., etc. Fifth American (from the Fourth London) edition. With 537 Illustrations on wood. New York: William Wood & Co., 61 Walker Street. 1870. Pp. 1,022.

THE rapid exhaustion of successive reprints of this invaluable work is sufficient evidence of the high favor in which it is held by the profession. Without indorsing all the peculiar conclusions at which Prof. Bennett arrives, we can sincerely say that his earnest advocacy and powerful support of physiological and pathological investigations as the real foundation of rational therapeutics, entitle his writings to the careful study of all physicians desirous of elevating practical medicine above mere empiricism; and even though the teachings of a semi-blind "experience" are still to be obstinately adhered to, Prof. Bennett still shows excellently well how to employ the most approved methods in making up the diagnosis. Suffice it to say, we consider this one of the indispensable books for the physician's library and study.

Bellevue and Charity Hospital Reports. 1870. [L. S.] New York: D. Appleton & Co., 90, 92 and 94 Grand Street. 1870. Pp. 416.

WE opened this book expecting to find little more than a mass of tolerably dry historical details and statistics, but were most agreeably disappointed by finding instead a series of fourteen really valuable essays upon various important points: Amputa-

tion of the Cervix Uteri — J. E. Taylor, M.D.; Sundry Physical Signs, three papers, by Austin Flint, M.D.; Excision of the Os Calcis, by F. A. Burrall, Jr., M.D.; Injuries of the Ankle Joint, and Mode of Dressing Fractured Clavicle, by Lewis A. Sayre, M.D.; Seventy-three Cases of Hernia, etc., by Frank H. Hamilton, M.D.; One hundred and two Cases of Bright's Disease, by Austin Flint, M.D.; On Some of the Effects of Excessive Intellectual Exertion, by Wm. A. Hammond, M.D., and several others of like interest. It is, as a whole, a valuable contribution to medical literature.

Why do not our Chicago hospitals take the hint, and go and do likewise?

Personal Beauty; How to Cultivate and Preserve it in accordance with the Laws of Health. By D. G. Brinton, M.D., Editor "Medical and Surgical Reporter," Philadelphia, etc., etc., and George H. Napheys, M.D., Chief of Medical Clinic of the Jefferson Medical College, etc., etc. Springfield, Mass.: W. J. Holland. 1870. Pp. 346.

Although this book was evidently written for popular use, yet practitioners will find in it many valuable hints not readily to be found in the text-books, or even the more elaborate library volumes. It is written in an easy, flowing style, relieved by frequent anecdote and witticism — just the thing to read after a hard day's work, with the feet upon the fender, and the lips closed on — if you can get it — a first-class *Havana*.

Pamphlets.

Contributions to Practical Laryngoscopy. Four Cases of Morbid Growths within the Larynx. Reported by A. Ruppaner, M.D. Plates.

Spinal Diseases. Pathology and Treatment of the Backward and Lateral Curvatures. By Julien S. Sherman, M.D., Chicago.

A Prize Essay on the Medical Activity of the Hemp Plant of North America. By Dr. HORATIO C. WOOD, Jr., Professor of Botany, University of Pennsylvania.

Report of Committee on Consanguineous Marriages. By Dr. ROBERT NEWMAN, of New York. Presented to the New York State Medical Society. 1869.

Dr. Watters' Doctrines of Life. Reply to London *Lancet*, and Closing Remarks. November, 1869.

Prize Essay — Acupressure. The Cash Prize awarded by the New York State Medical Society. 1869. By JOSEPH C. HUTCHINSON, M.D., Brooklyn, N. Y.

The Physical and Medical Topography, including Vital, Manufacturing, and other Statistics of the City of Wheeling, Va. By JAMES E. REEVES, M.D., City Health Officer, etc., etc.

Fifth Annual Report of the Directors and Superintendents of the Illinois Institution for the Education of Feeble-minded Children, located at Jacksonville.

The Half-Yearly Abstract of the Medical Sciences. Being a Digest of British and Continental Medicine, and of the Progress of Medicine and the Medical Sciences. Edited by WM. DOMETT STONE, M.D., F.R.C.S. (Exam.) Vol. I. January, 1870. Philadelphia: Henry C. Lea. 1870. Pp. 296. $2.50 a year. Single copies, $1.00.

Medical Department of the Library of the Long Island Historical Society. An Account of its Formation, with a Catalogue of its Books. Brooklyn. 1870. From C. L. Mitchell, M.D., Brooklyn.

Transactions of the American Ophthalmological Society. Sixth Annual Meeting. 1869. Also, of the *American Otological Society.* Second Annual Meeting. 1869.

[Several of the above monographs, etc., will be further noticed as soon as space will permit.]

The American Journal of Syphilography and Dermatology. Edited by M. H. Henry, M.D., Surgeon to the New York Dispensary, etc. January, 1870. Published quarterly. New York: F. W. Christern, No. 77 University Place; Lindsay & Blakiston, Philadelphia. $3 a year. Single copies, $1.

The initial number of this journal is handsomely gotten up, and its contents are as varied and interesting as the specialties to which it is devoted will permit. We wish the enterprising editor and publishers abundant success.

Editorial.

Rush Medical College — Spring and Summer Course.

In answer to numerous correspondents, we reply that this is not a regular or "graduating" course. It is conducted solely for purposes of instruction, for which this city furnishes most excellent opportunities.

Coroner's Inquests.

It is extremely to be regretted that, for unexplained reasons, the *post-mortem* examinations, made by order of the coroner, however they may conduce to the maintenance of justice and public order, are totally unprofitable toward scientific progress.

A case in point has recently occurred in this city. An unfortunate colored man received a wound in the axillary region, the hæmorrhage from which was so profuse as to require surgical interference. A thoroughly experienced and highly accomplished surgeon proposed to enlarge the opening and tie the artery at the point. The colored man, declining this operation, soon after fell into the hands of some parties, to us unknown, who proposed some treatment (also unknown), which, it seems, was unsuccessful, as, subsequently, an attempt was made to ligate the subclavian. Hence, a speedy coroner's inquest, with a verdict of *death from hæmorrhage.*

What was found by the official examiner was, briefly:

"Inferior trunks of axillary plexus torn up. Could not find the phrenic nerve.

"Ligature included full half of the scalenus anticus muscle, as well as the artery.

"On opening the thorax, the lung was found collapsed, and a broad beam of daylight poured into the cavity from the seat of the operation in the neck."

Under these circumstances, the verdict given strikes us as requiring some explanation. *Quien sabe?*

News Items.

Both the San Francisco medical journals are in full blast, notwithstanding the reported consolidation. Without meddling in the local controversy, we are sure that any move which should deprive the editorial fraternity of the Drs. Gibbons, would be one to be regretted by the profession. Their journal (*The Pacific*) has been and is a most valuable one. —— The *Journal of the Gynæcological Society* chronicles a case of nymphomania, reported to the society with request for suggestions as to treatment. Coitus had been tried ineffectually, "but proved useless, from the fact that those employed could not exert themselves half enough for her satisfaction." The society report leaves the matter still somewhat obscure, viz.: "Dr. Perry remarked that in his own experience cases of nymphomania were very rare. He thought that, in twenty-five years experience, he had seen but two instances of the kind. Dr. Sullivan was inclined to think that the most successful treatment, in many instances, was to allow excessive intercourse." Are we to understand this as the conclusion of the society? —— The same journal, through Dr. Storer, properly characterizes the false and filthy statements of Mrs. Dall's famous letter *anent* female physicians (indorsed in the *Independent* by William Lloyd Garrison). —— The *Nashville Journal* is always spicy, readable and instructive. In the February number the editor comments upon the "New Medical Society" of Washington, organized to include "females and colored men," and in the course of his article gives some inside views of the workings of the American Medical Association in its various attempts to control the colleges. Alluding to the jere-

miads of the *elevators*, he says: "It is consolatory to think, however, that the American system of manufacturing doctors, however defective and needing reformation, did, notwithstanding, turn out from its feeble machinery these very distinguished reformers, and thus, like Swallow Barn's Mill, on Apple-pie Creek, did some good before its water-power was dried up by the dog-days." —— The *Western Medical Journal*, heretofore published at Indianapolis, has been merged in a new paper, *The American Practitioner*, jointly edited by Dr. Yandell, of Louisville, and its former able and accomplished editor, Dr. Parvin. This is a powerful combination of talent, and promises a rich reward in success. —— The *Baltimore Medical Journal* is a new candidate for professional favor, edited by Drs. E. L. Howard and T. E. Latimer. It is a handsome monthly of sixty-four pages, at $4.00 a year. It promises "independence of all other interests, and will not be the organ of any corporation or clique," which insinuates that there are other interests, corporations or cliques, even in the monumental city — from which (in Chicago), good Lord, deliver us! —— The *Medical Bulletin*, of Baltimore, has taken on a new dress, and is edited with spirit and ability. —— The *Leavenworth Medical Journal*, also, is inspired by the new year, and has fitted itself with a new typographical suit. There is an independence and outspoken exposure of shams, pretences and pretenders, in this frontier exchange of ours, that commends it most fully to our affections. The February number is excellent in this regard, and we wish we had space for its indignant exposition of sundry "Home Physicians," *Medical Advisers*, etc. —— The Lexington papers chronicle the death of the widely known and distinguished surgeon and medical teacher, Professor Benj. W. Dudley, at the ripe age of eighty-five years. The *American Practitioner* promises a memoir of his life and writings in its next number. —— At the time of the death of Prof. Dunglison there had been issued of his works 160,000 volumes. —— The venerable Dr. Nathan R. Smith has resigned the chair of surgery he has so long filled in the University of Maryland. —— Prof. J. W. Freer, of Rush Medical College, has returned to Europe, where he will remain until the opening of the next annual session of the College. The course on physiology, which he has recently completed, is probably the first completely demon-

strative one ever given in any college in this country. All his illustrations, experiments, vivisections, etc., have been most remarkably successful, evidencing an originality and facility scarcely surpassed either in this country or Europe. —— Dr. Hunt has recently performed the operation of transfusion successfully, a consumptive young lady in Wisconsin being the patient, and members of the family furnishing the blood. Of course, the kind of case was not desirable for the experiment. Details are promised for a subsequent number. —— We have been shown an improved eye-shade, which seems excellently well adapted to the purpose. The common shade is usually troublesome, both by direct compression, and by its interference with transpiration and evaporation, the breath, etc. The improvement consists essentially in adjusting the shade, with a spring, so that a space of half an inch, or more, is left between the upper border and the forehead. They may be found at the drug-store of Walker & Son, McVicker's Theatre building.

Loot.

On Earth-Closets.

THE disinfecting property of dry earth, humus, clay, charcoal, peat, bone black, ashes, and other solid substances, has long been known, and all of these bodies have been applied in one way and another for the prevention of bad odors, for the filtration of water and absorption of gases. The bodies of the dead have, with most nations, been buried beneath the soil, and thus all danger likely to arise during their decay has been removed.

In the thickly populated regions of the East, necessity has impelled the inhabitants to have recourse to the same principle in the disinfecting of all fæcal matter, but in a sparsely settled country great carelessness is apt to creep in and to maintain its supremacy, long after a large increase of population imperatively demands as much care in the removal of all excremental matter as it does in the proper disposition of dead bodies.

The action of dry earth is not only chemical but physical, — and consists mainly in the absorption and removal of the water necessary to the decay of organic substances; the formation of dangerous gases is thus prevented and the animal matter is left to a slow decay (combustion) and no odors can arise.

A small amount of earth is sufficient to disinfect a considerable quantity of putrid or offensive matter, and for this reason its use has been strongly recommended in hospitals in cases of bad sores and wounds.

The recent learned researches of Pettenkofer on the causes of typhus and cholera have led to the conclusion that these dangerous diseases prevail in regions where the water from sewers, out-houses, sinks, etc., approaches near the surface. In fact the cholera was traced along the water courses, and the upper part of the same valley would be left untouched, while the lower portions were subjected to the ravages of the disease. During a dry season the disease was less likely to appear than during a wet. The incontrovertible conclusion forced itself upon the mind of Pettenkofer that there was nothing more dangerous than to have the water near a dwelling contaminated by the diseased fæcal excreta of the population, and he sought for some remedy for this startling evil. If he had heard of the epidemic in the National Hotel at Washington, and of the fever that proved so fatal at the Pittsfield Seminary, he would have had some further confirmation of the accuracy of this theory.

The labors of Pettenkofer in Germany have been ably seconded by those of the Rev. Henry Moule, of Fordington Vicarage, Dorsetshire, England. He experimented with a large number of substances, and finally returned to mother earth, where he found, in the cheapest of all material, the very best agent for the removal of danger.

He proposed to use dry earth as a disinfectant, and invented a simple contrivance for the application of this principle to commodes, thus doing away with all out-houses and other sources of evil about the homestead.

If his suggestions could be universally applied, there is no doubt that the death rate from typhus, intermittent fever and cholera, would be greatly reduced, and the general health of every family largely promoted. We propose to give a description of the apparatus, by the use of which the disinfecting property of dry earth can be practically applied in every household, and for this purpose shall make copious extracts from a pamphlet on the subject of earth-closets, by Mr. George E. Waring, late engineer of the Central Park, and published by the Tribune Association; a pamphlet, by the way, that ought to be circulated as a tract in every portion of the country.

"The principle of the earth-closet is based on the power of clay and the decomposed organic matter found in the soil to absorb and retain all offensive odors and all fertilizing matters; and it consists, especially, of a mechanical contrivance, (attached to the ordinary seat), for measuring out and discharging into the vault or pan below a sufficient quantity of sifted dry earth to entirely cover the solid ordure and to absorb the urine.

"The discharge of earth is effected by an ordinary pull-up similar to

that used in the water-closet, or, (in the self-acting apparatus), by the rising of the seat when the weight of the person is removed. The vault or pan, under the seat, is so arranged that the accumulation may be removed at pleasure. From the moment when the earth is discharged, and the evacuation is covered, all offensive exhalation entirely ceases. Under certain circumstances, there may be, at times, a slight odor as of guano mixed with earth, but this is so trifling, and so local, that a commode arranged on this plan may, without the least annoyance, be kept in use in a room.

"Mr. Moule's patented invention consists of a tight receptacle under the seat, a reservoir for storing dry earth, and an apparatus to measure out the requisite quantity and throw it upon the deposit. A hopper-shaped reservoir, made of galvanized iron, is supported by a frame-work at the back of the seat. Connected with the handle, at the right hand side, there is an iron lever, which operates a movable box at the bottom of the reservoir and causes it to discharge its contents directly under the seat. When the handle is dropped, the box returns to its position, and is immediately filled preparatory to another use."

It is difficult, without the aid of diagrams, to convey an accurate idea of the apparatus employed, but any one sufficiently interested in the subject can easily obtain drawings or descriptions from the Earth-Closet Company of Hartford, Connecticut. After the galvanized iron scuttle is full it can be emptied in a protected place and the contents left to air dry, when it can be again used and again dried, as many as eight or ten times. It will be seen from this that a very small amount of earth is sufficient to serve the wants of a large family. As soon as the pores of the earth have become full it can be employed as s most valuable fertilizer. This brings us to speak of the important saving effected by such an application of the fæcal deposits. The value of composts annually wasted has been put at very high rates, and this view alone would warrant the adoption of the new system, even if the far more important sanitary reason were not enough to convince the most skeptical of its value.

Mr. Waring estimates the direct annual loss to the country by the waste of night soil at $50,000,000. The indirect loss in the falling off of the producing power of the land is left out of view, and the other far more serious loss of life occasioned by diseases brought on by open privy cannot be computed in money, but must especially attract the attention of every student of social science in the country.

There are not wanting statistics of experiments tried in England of employing the dried earth as a fertilizer, after it had been used in the closets, and the results were such that many farmers expressed their willingness to pay as much for the earth as they would for guano. It is probable that in course of time dealers in guano will be prepared to purchase the article at a fair price, and thus those families who have no garden will be able to sell night-soil enough to pay for the vegetables consumed at their table.

"The supply of earth to the house, is as easy as that of coals. To the closet it may be introduced more easily than water is supplied by a forcing pump, and to the commode it can be conveyed just as coal is carried to the chamber. After use, it can be removed, in either case, by the bucket or box placed under the seat, or from the fixed reservoir, with less offence than that of the ordinary slop bucket, indeed, (I speak after four years experience), with as little offence as is found in the removal of coal ashes, so that, while servants and others will shrink from the novelty, and at first imagine difficulties, yet many, to my knowledge, would now vastly prefer the daily removal of the bucket or the soil to either the daily working of a forcing pump, or to being called upon once a year, or once in three years, to assist in emptying a vault or cesspool.

"The earth after it has absorbed the excretions, is so perfectly inoffensive, that I have known some that had been mechanically mixed, taken the same day to London in a box in his carpet bag, by a chemist; and by two engineers' clerks, it was taken wrapped in brown paper in the side pocket." Mr. Moule).

Mr. Waring speaks of the difficulty of properly disposing of kitchen and other house slops and makes the following admirable suggestions:

"Any means by which they may be filtered through or covered with earth will solve the problem. The English plan is to run them through open-jointed draining tiles laid about a foot below the surface of the ground. The lines of tiles being within five or six feet of each other, great fertility may thus be given to the ground of a garden. In our colder states this plan would not be effective in winter. A large hogshead standing on the ground, the bottom being removed, will be serviceable at all seasons of the year, and will produce an immense amount of valuable manure.

"A wooden hopper provided with a lid, and extending to the middle of the hogshead, serves to catch all grease and garbage, and to conduct the liquid to a point where it has earth above and below it. In this way the kitchen slops of a family of five persons for four months were entirely disinfected without changing the earth, and nothing but pure water escaped at the bottom of the hogshead."

Professor Samuel W. Johnson, of Yale College, than whom we have no higher authority in all agricultural matters, writes to the New Haven *Palladium* in the following forcible language, in reference to the Earth-Closets:

"There are two grave questions which enforce attention from every dweller in the city, and should not be neglected by those who have the country for their home. These questions relate to the disposition of the liquid and solid waste of the human body. One of them is, how shall the waste be effectually prevented from being an annoyance and source of disease? and the other, how shall it be made a means of fertility to the soil, and thus an item of national wealth?

"Nothing is better established than the connection between human excrement and certain fearful epidemics.

"It is on all hands admitted that the cholera is most frequently and certainly transmitted to healthy persons, by the intestinal evacuations of those who have been sick with this disease.

"Typhoid fever, a form of disease very prevalent among us, is often traceable, with scarcely less certainty, to privy vaults, cesspools and sewers. It is stated that Prince Albert, of England, probably contracted

the disease that was fatal to him from the foul air that found its way into his study out of a forgotten sewer, through a crack in the wall."

"Most often it is our drinking water that brings into us the contamination. In multitudes of cases the well is but a few yards or feet from a cesspool that receives the kitchen slops on one hand and a privy vault on the other. The writer knows a well which furnished good water for about five years after it was excavated, in what was until than a vacant lot, but after this interval became unpleasant in taste, its flavor plainly suggesting the nature of its impurities.

"In his researches of the cholera, in Bavaria, in 1854, Pettenkofer traced its spread in several cases, in the most indubitable manner, to the use of water which had been in contact with the fæces of cholera patients.

"The safest mode of escaping the evils in question, hitherto adopted in closely built towns, consists in removing all human excreta to a distance, by subterranean sewerage.

"The waste involved in the 'civilized' way of treating the materials under notice is immense. Every harvest brings from the country to the city, from the West to the East, a vast bulk of beef, corn and hay, whose use to the city-people does not, for the most part, consist in any permanent giving of its elements, but which, after having weighed the wheel of life through half a ton, and dropped off as waste, admits of conversion into food again, if but carried back to the fields. The gardeners and farmers in our immediate vicinity are obliged to disburse heavy sums each year for the phosphates and nitrogen which their crops demand, and which their land cannot adequately supply. The guanos and fish manures, which are brought from a distance or manufactured at heavy cost for their use, are in reality paid for, not by them, but by those who purchase their produce in the city markets. The animal who stands at the head of creation requires the richest food, and yields to the food producer the richest return It requires but little art to convert his excrement into manure, and the conversion may be made extremely profitable.

"The means of satisfying, at once, all demands of sanitary science and of agriculture is, however, fortunately everywhere at hand, and of extreme simplicity and cheapness in its application. *Dry and fine earth* is the material.

"This property of earth is no new discovery. Its use was prescribed to the Israelites, (Deuteronomy, xxiii, 12 and 13,) and is turned to good account by the instincts of our domestic carnivora. The Rev. Henry Moule, an English clergyman, was the first to elaborate, by a careful study of the subject, a plan for the systematic employment of earth for this purpose.

"The arrangements required to constitute an earth-closet are not necessarily complex or expensive. It is only needful that a space be had below the privy seat, the bottom of which should be of flagging or cement, and a little above the ground level, or at least protected from the wet of rain and of the ground. The space should communicate with a shed at the rear of the privy, to hold on one side a load or two of dry fine earth (not sand) or sifted coal ashes, and leave an equal room unoccupied on the other. For hospital or sick-room use, either a simple commode or pail, with a hod of earth to apply, or the self-acting commodes of Mr. Moule, may be used.

"Very important it is that hotels, schools, and, we may add, colleges, should be provided with this labor and health-saving arrangement. In large schools it is sufficient to put the application of earth in charge of an attendant. In hotels, the self-acting apparatus is better.

"The fertilizing value of the properly managed compost should be abundant renumeration to parties supplying earth, especially as its carriage is not attended with the slightest odor, and requires not the

cover of darkness to mitigate its terrors, while its use is less disagreeable than that of Peruvian or fish guano, and not worse than the employment of any old compost.

"Reader, lose no time in providing yourself, and inciting your neighbor to provide, some form of earth-closet, in lieu of the vault which has hitherto sufficed. Health and economy both demand it! City authorities would do well to enact that all privies, within a hundred feet of dwellings, or of wells in use, should be converted into earth-closets, and to provide for their systematic and thorough inspection."

The advantages and importance of earth-closets must be apparent to every one who has followed us thus far in our article. They require very little architectural change, and can be put anywhere when a vault is not already dug; they are entirely without odor, and preserve in the best way the full agricultural value of the manure.

If there is a suitable room about the premises for the construction of the reservoir for the earth, it can be made sufficiently large to require to be rarely filled. Where there is a scarcity of earth it is better to dry and use it several times. The contents of the hod must, in this event, be carried daily to a particular spot, and there dried and sifted. In warm climates this can easily be done, but in wet seasons some artificial method for drying must be employed. Twenty-four cubic inches of earth is probably enough for each drop, or a cubic foot for seventy-two times; at the rate of 400 visits per annum for each person, the yearly consumption would be five and a half cubic feet of earth, and, where the earth is used over 8 times, the requirements would be about one cubic foot per annum for each person. This estimate shows that the labor of providing all of the necessary earth must be very small in the country, and it is probable that, after a few years, the rich compost will become a source of profit, and the earth will cost nothing.

Surely a system that will save many lives, keep up the good health of the family, avoid waste of valuable manure, and is cheap and easy of application, ought to be universally substituted for the wasteful, dangerous, unhealthy custom handed down to us by our forefathers. — *Journal of Applied Chemistry.*

Hydrate of Chloral.

From the *Journal of Applied Chemistry* we extract:

"Doctor Bouchut confirms the observations made by Liebreich. The contradictory opinions expressed in reference to the action of chloral are due to the impurity of the material employed. With the hydrate of chloral pure, the results are rapid, evident, energetic. They are hypnotism (sleep) the most tranquil, and sometimes an absolute insensibility. The liquid chloral ought never to be employed. The solid hydrate ought always to be taken for solution in any convenient agent. The acicular crystals, or the

white snowy mass, can generally be assumed to be pure; but, to make sure of the point. it is well to test it with a concentrated solution of potash. If the hydrate of chloral is pure, it will color the potash to a scarcely appreciable faint yellow tinge, and disengage a distinct odor of chloroform, and sometimes the liquid will remain perfectly colorless. If the liquid becomes brown, and disengages the vapors of chloroform, mingled with chloracetic acid, it is a proof of impurity. The liberation of acrid, disagreeable gases, is another proof of impurity. * * * *

"At the meeting of the Chemical Society of Berlin, October 25, 1869, Messrs. Mueller and Paul presented a paper on the preparation of hydrate of chloral. They pass chlorine gas through absolute alcohol until the entire contents of the flask is converted into a solid, white, crystalline mass. For this purpose a strong current of dry chlorine gas must be passed through the alcohol for 60 to 70 hours. If the operation be conducted with care, a uniform product of nearly pure hydrate of chloral will be obtained. The hydrate can be purified by sublimation; for this purpose two funnels are employed, the lower one passes into the mouth of the flask, and the upper one is inverted upon it; the sublimed crystals collect on the walls of the two funnels, and can be easily scraped off, and yields a snow-white, dry, neutral crystalline powder. The novelty of the process consists in converting the whole of the alcohol into the hydrate of chloral, and the subsequent purification by sublimation."

The *Lancet and Observer* gives a translation from the *Bulletin de Therapeutique*, Nov. 26, 1869, of which the following are the conclusions:

"1. The hydrate of chloral is a powerful sedative of the motor and sensitive nervous system.

"2. If the hydrate of chloral is not very pure, so that by the addition of potassa to a solution, the vapors of chloroform are liberated without discoloration of the liquid, it is without action, and may be very dangerous.

"3. Hydrate of chloral should not be administered to the adult in doses exceeding seventy-five to ninety grains, and in children it is necessary to commence with fifteen to thirty grains.

"4. Preparations of hydrate of chloral should not be prepared too long previous to administration, for they may change and lose their efficacy.

"5. Hydrate of chloral may be given by the mouth, or in enemas, which produce the same effect as when administered by the stomach; but the latter method is preferable.

"6. Hydrate of chloral should not be given to persons affected with organic disease of the heart or brain.

"7. It is by the production of chloroform in the blood, under

the influence of its alkaline reaction, that ingested chloral causes sleep and anæsthesia.

"8. It is dangerous in man to administer hydrate of chloral by subcutaneous injections.

"9. Under the influence of hydrate of chloral the arterial tension is augmented, and the frequence of the pulse is somewhat increased; and this tension diminishes on awaking, as is shown by sphygmographic traces.

"10. The urine of chloral sleep is neutral, and boiled with Fehling's liquor does not at first reduce the salts of copper, but the next day, when we find chloral passed by the kidneys, the urine is more dense, and reduces the salts of copper, so that we may be led to think there is a glycosuria, which in fact does not exist.

"11. Hydrate of chloral seldom causes vomiting, and never purging.

"12. The temperature is slightly lowered by medicinal doses of hydrate of chloral, and it should, therefore, be classed as a cooling remedy.

"13. Under the use of hydrate of chloral, cutaneous perspiration is diminished, and the skin is somewhat dryer than is normal.

"14. Hydrate of chloral has this advantage, that we can regulate the dose necessary to produce anæsthesia, while in administering chloroform we cannot control precisely the quantity of vapor; when we employ chloroform we are not exactly sure of what we are doing, and it is this that renders it dangerous.

"15. The action of hydrate of chloral is exactly that of chloroform, but it is more slowly produced, and lasts much longer.

"16. With some persons under the influence of chloral there is a muscular and moral agitation resembling alcoholic intoxication, but this intoxication presents nothing disagreeable or disgusting.

"17. In nearly every case the sleep is characterized by well pronounced anæsthesia, and seldom accompanied by hyperesthesia.

"18. The degree of anæsthesia is proportionate to the dose employed. In the dose of thirty to seventy-five grains, according to the age, it is complete, and permits the application of Vienna paste cauteries without pain, or even the extraction of teeth.

"19. Compared with opium, which causes vomiting, which destroys the appetite, which heats and stimulates, which constipates, which excites perspiration, which produces sleep slowly and heavily, which leaves, on awaking, distress and prolonged somnolence, the hydrate of chloral neither vomits nor constipates, and improves the appetite; it lessens perspiration, and cools the surface; it causes quick and prolonged sleep, and on awaking leaves neither somnolence nor hebetude of mind, and can be taken several days in succession.

"20. In large doses, hydrate of chloral produces algidity, while opium, on the contrary, causes heat and diaphoresis.

"21. We may repeat the dose of forty-five to seventy-five grains two or three times during the day, without inconvenience, and with the result, each time, of several hours' sleep, separated by a short period of wakefulness.

"22. Therapeutically considered, the hydrate of chloral subdues the violent pains of gout, and the intense sufferings of renal colic, or large burns and toothache. It is, in a word, the first of anæsthetics administerable by the stomach.

"23. In cases of accouchement in which we desire to resort to chloroform, hydrate of chloral may be substituted, to appease normal pains, to facilitate obstetrical operations, and to combat eclampsia.

"24. It is the most prompt and efficacious remedy, in intense chorea, when we wish quickly to suspend an agitation which menaces the days of the patient."

Partial Paraplegia.

In a case, now under our care, of partial paraplegia, probably resulting from injury of the spine by a fall a year or two since, but wherein also there had been some fears of a *specific* cause. The patient has previously consulted Ricord and Brown-Sequard in Paris, and Pavy in London. Ricord diagnosed the case as non-specific. Brown-Sequard prescribed as follows:

(1.) ℞ Potassii iodid., - - - - - ʒ ij;
Ammon. iodid., - - - - - - ʒ iij;
Ammon. carb., - - - - - ℈ ij;
Infus. columbæ, - - - - - - ʒ v;
M. S.—Two tablespoonfuls, before meals, with a little water.

(2.) ℞ Extr. belladonnæ, - - - - gr. iv;
Secalis cornuti pulv. recentis, - - ʒ j;
M. ft. pil. xxx.
S.—One pill after each meal.

(3.) ℞ Ammon. bromid., - - - - ʒ ij;
Aq. destillatæ fl., - - - - ʒ v;
M. S.—A teaspoonful and a half twice a day, before meals. Indorsed: (This can be mixed with the first.)

On the second (2) formula is indorsed:

(After two weeks begin with this in any case, and use for two weeks. In case it does not produce a good effect, try the third formula a month at least.)

Dr. Pavy prescribed:

℞ Pot. bromid., - - - - - - ʒ ij;
Pot. iodid., - - - - - - - ʒ j;
Sp. ammon. ar., - - - - - - ʒ j;
Aq. camph. ad., - - - - - - ʒ xij;
Misce fiat mist; cap. cochl ij magna ter quotidie.

℞ Extr. belladonnæ, - - - - - - gr. ¼;
Extr. gentianæ, - - - - - - gr. iij;
Misce ft. pil. et sep. ad xij, cap. j ter quotidie.

Two weeks later he prescribed:

℞ Pot. iodidi, - - - - - - ℈j:
Tinc. nucis vomicæ, - - - - - - ʒiss;
Ext. taraxaci, - - - - - - ʒiij;
Aq. destill. ad., - - - - - - ʒvj;
Misce fiat mist. cap. cochl. ij magna ter quotidie.

The general coincidence of the independent prescriptions of these two eminent gentlemen, is a proud vindication of transatlantic skill in diagnosis, and "the tendency of great minds to run in the same channel." It is also a tribute to the general power of the medicines employed, in Europe as well as America. We are personally gratified to find that they are not yet entirely superseded by iodoform, carbolic acid, or the hydrate of chloral.

Paste.

THE following is a recipe for making common paste which will keep a long time without fermentation:

Dissolve an ounce of alum in a quart of water warmed; when cold add as much flour as will give it the consistence of cream; then strew into it as much powdered rosin as will lie on a shilling, and two or three cloves, ground. It will keep for a year, and when dry may be softened with water.

Morphine vs. Atropine.

DR. MINER (*Buffalo Medical Journal*) reports a case of morphine poisoning apparently relieved by atropine.

Kerosene.

SEVEN out of sixty-four fires in New York during the month of August, was caused by kerosene. Out of one hundred samples of oil tested by the Board of Health, only *one* came up to the legal standard. Manufacturers and dealers are reckless in their violation of the law, and will continue to be so until public sentiment demands its rigid enforcement. The crime ought to be punished as severely as arson.—*Boston Journal of Chemistry.*

The daily accidents, often of a most fearful character, which occur from the use of this substance, aside from the mere risk of property, would seem to demand the most stringent legislation upon this subject.

Alcohol on Sponge.

J. B. HOUGH, M.D., of Ridgeville, Ohio, says: Knowing the fact that absolute or *strong* alcohol will quickly *set* the fibres of common sponge, after having been moulded or compressed into

any given size or shape, I was led to the following quick and easy method of preparing sponge tents, tampons, etc.:

The sponge is first thoroughly moistened with water and pressed as dry as the strength of the hand will permit; then having formed it into the desired shape and size by the hand, or by pressing into a quill or any other tube or mould, it is immersed into the alcohol. If the spirit is sufficiently strong (90 to 100 per cent.), the sponge is *immediately* set into the given shape, which it retains perfectly after the pressure or mould is removed. It is then hard, firm and inflexible, and may be trimmed to a sharp point or any other desired shape.

To restore it to its former size and shape, it is only necessary to moisten it with a few drops of water. The alcohol sets the sponge perfectly, whether the amount of compression be much or little, so that the degree of dilatation attainable by the use of tents thus prepared, will of course depend upon the size after moulding, and the degree of pressure used. As this process of preparation works perfectly and *without delay*, its advantages are obvious.—*Boston Medical and Surgical Journal; Cincinnati Lancet and Observer.*

The Perils of Fashion.

We are indebted to a lady correspondent for the correction of a mistake, or rather an omission, in our recent article on Tight-lacing. In ascribing the ungainly, feeble, and tottering walk of our modern fine ladies and their middle-class imitators to the decrepitude induced by tight-lacing, we omitted to mention another fashionable folly which assists in the production of this evil, and has also other sins of his own to answer for. The custom of wearing high boot-heels, and those too so much smaller than the actual heel of the wearer as to afford no solid support, but only a balancing-point, is a source of much mischief. In the first place, it throws the centre of gravity of the body so far forward that a free and gracefully erect carriage is impossible. Secondly, there being no firm support to the heel, ladies are very apt to twist the ankle suddenly by overbalancing themselves; and this is not only bad in itself, but the fear of its occurrence makes them assume a timid, mincing gait. And, thirdly, the effect of driving the foot constantly forward into the toe of the boot, is to produce a very ugly and painful distortion of the great toe joint.

There is little need for wonder at the almost fierce contempt with which young men whose characters are at all above the lowest grades of conventional inanity regard the average "girl of the period." It cannot be denied that there is a significant correspondence between the æsthetic hideousness and the degrading effects on physical health which are produced by tight stays and crippling boots, and a certain mental and moral tone in female

society of the present day, which is no less surprising than it is repulsive. The whole dress and carriage of our fashionable women, for several years past, has been modelling itself, with less and less concealment, upon the ideal furnished by Parisian *lorettes* of the consumptive Traviata type. It is not our business to set up as moral censors. But we may be excused if, for once in a way, we find it impossible to ignore the logical though repulsive consistency of the *grandes dames* and the citizenesses who are willing to spoil their lungs and their digestions, and endanger their chances of happy maternity, for the sake of a wasp waist; to talk slang closely verging on indecency, for the sake of the tenth part of a chance of catching a husband; and to simper and leer at the indecencies of a *Grande Duchesse de Gerolstein*, in order to escape the dreaded imputation of a deficiency in *chic*.—*Lancet*, Oct. 2, 1869.

Dissection Wounds.

THE name of Professor Boehm of Berlin, must be added to the long list of victims who have perished in the accomplishment of the perilous duties of the profession. While dissecting a body in the presence of the students, he scratched his hand with the scalpel, but so slightly that he neglected to cauterize the wound or to take any other precaution. Two days afterwards, the hand had swollen enormously, and since then all the means which had been tried to arrest the progress of the disease have been to no purpose.—*Medical News.*

Remarkable Operation — Extirpation of a Kidney.

AT a meeting of the New York Medical Journal Association, Dr. H. Knapp made a communication concerning a new triumph of surgery, namely, the *successful extirpation of a kidney*, by Prof. G. Simon, Heidelberg. The patient on whom the operation had been performed, early in August last, was a woman both of whose ovaries and part of the uterus had been excised previously by another surgeon, for ovarian dropsy. The wound had healed, but a *urinary fistula* had established in the cicatrix of the abdominal wall. By ingenious experiments, Prof. Simon found out that it was not a piece of the bladder, but one of the ureters, and which of the two, that had been implicated in the cicatrix. The extirpation of the corresponding kidney was not easy, but effected without a serious accident. The patient experienced some fever during the first two weeks after the operation, but recovered entirely within six weeks. Dr. Knapp said that he felt happy in being authorized to give the Society this preliminary notice, according to a letter he had just received from

Prof. Simon himself. He thought this operation would interest the Society, not only as the newest, but also as one of the most remarkable surgical achievements.—*Phil. Medical and Surgical Reporter.*

Water in Alcohol.

A SIMPLE test of the percentage of water in alcoholic solution is furnished by the affinity of alcohol for chloroform. In the experiment a little chloroform is poured into a graduated glass tube, and a given volume of the spirits to be tested is added, and both well shaken up together. On settling, all the water will be found to have separated from the alcohol (which has combined with the chloroform), and its amount can be read off on the graduated tube.—*American Artisan.*

Bromide of Potassium for the Troubles of Teething.

THE bromide of potassium is highly spoken of by Dr. Hoehling (*St. Louis Med. Jour.*), and by Dr. Caro (*Medical Record*), as a remedy for faulty nutrition, irritability of the stomach, vomiting, restlessness, diarrhœa, etc., resulting from teething. From half a grain to a grain, given every hour or two, will, in a short time, often procure relief and sleep when other means have failed. The following is selected from Dr. Caro's list of twenty cases: S. Fay, nine months old, has six teeth, nursed by a healthy mother. After fifteen days of diarrhœa, with from fifteen to twenty passages every twenty-four hours, was cured by a mixture of one drachm of bromide of potassium in an ounce of mucilage, twenty drops every hour. Dr. Caro adds: "I have had fifteen similar cases in every form, having been sick from fifteen to twenty days before coming to me, all treated and cured by the bromide of potassium."

[WHILE the candidates for graduation, at the recent Commencement of Rush Medical College, were responding, in writing, to Prof. Gunn's interrogatories, a first-course student perpetrated and sent down the following impromptu:]

Oh! Dr. Gunn, it is such fun
To stand examination.
While sitting high, who else but I
Can give the explanation?

I.

Of abscess,* signs of which are pains
Above the sacral bone,
A weakened back, and general lack
Of health, and strength, and tone.
And when the pus shall make a fuss,
And down the psoas burrow,
Upon the thigh will appear high
Suspicions, like a furrow.
And if of wit you've not a bit—
For hernia should mistake it,
'Tis my belief you'll come to grief—
A cure you will not make it.
I think there is,—so Druitt says,—
A kind that does not burrow,
But keeps behind and is the kind
That makes the patient sorrow.
It gives him chills, and often fills
His nights with pain and woe,
With hectic blush his cheek will flush,
He thinks he soon must go.

II.

How shall we treat it? Why, thus we'll greet it:
On beef we'll feed him well.
And if at length he keeps his strength,
Prognosis good we'll tell.
And when it points, why use the lance
And let the matter out.
'Tis of no use to keep him close,
But make him ride about.

III.

Of number three, just this I'll say:
You'll find the scrotum full;
'Twill feel like worms had there their home,
And downward it will pull.
The venous blood, an ebbing flood,
Comes down the spermatic vein.
It will not flow where it should go,
But settles back again.
Just tie the vein, and then, I ween,
No more will you be wanted;
The weight above you will remove,
Your service will be vaunted.

* Psoas.

IV.

Of cancer? Well, I cannot tell
Just why it should appear;
But this I know, 'twill faster grow
The more we interfere;
Unless to save, with courage brave,
We use the surgeon's knife:
I've heard you say, "perchance it may
Prolong the patient's life."
I think you said "'twas called colloid,"
The alveolar kind.
Where it loves best to make its nest
I cannot call to mind.
Its appearance gross, I must confess,
Like jelly somewnat looks —
Of watery hue, transparent, too,
And full of little nooks.
Peculiar cells its substance fills,
The microscope will show.
But what they are, I am not sure —
You surely ought to know.

V.

A broken knee? Oh, yes, I see
The fracture is transverse;
'Twill lengthwise go, and radiate, too,
Which makes the matter worse.
The truth to tell, the knee will swell —
And may I be so bold? —
The lazy wretch his leg can't stretch,
The "rectus" has lost his hold.
Now, a roller find and tightly bind
The thigh from ilium down,
And then, at last, just stick it fast,
If "adhesive" can be found.
The leg keep straight, and keep it late,
Upon a splint extend;
Six weeks, you know, before 'twill do
To let it freely bend.

Why, bless me! so I've got through,
And it is getting late, —
This more I'll tell — I wish quite well
I were a graduate.

A First-Course Student.